Volume XIX Number 4

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DISEASES OF THE NERVOUS SYSTEM

A Practical Journal on Psychiatry and Neurology

APRIL

1958

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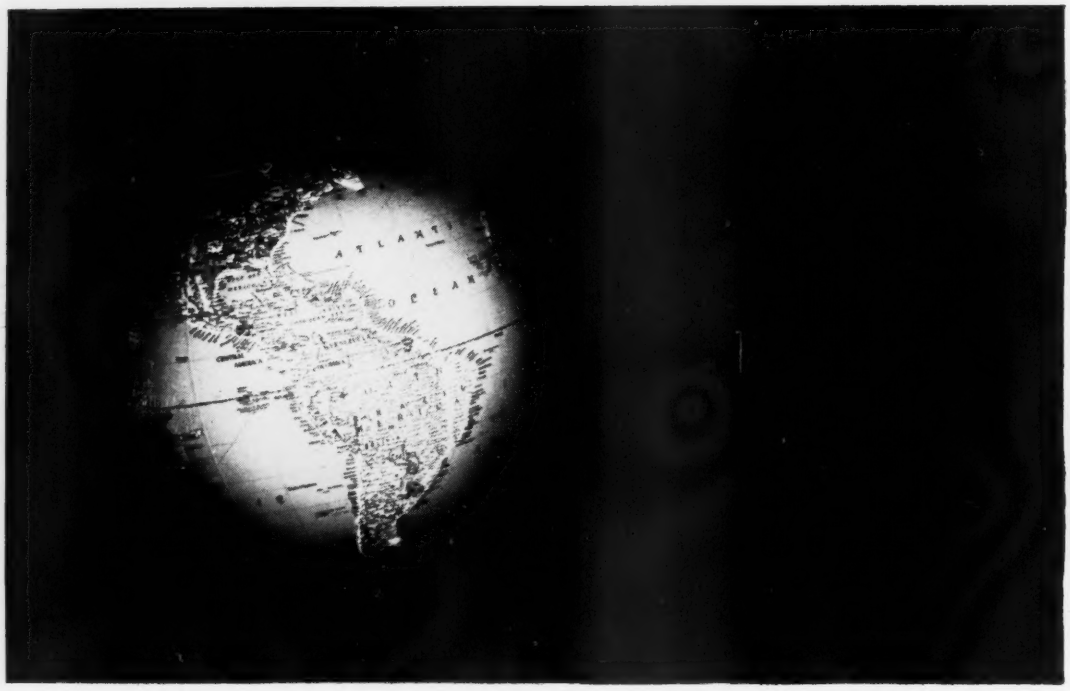

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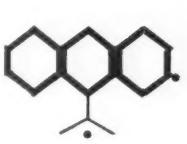

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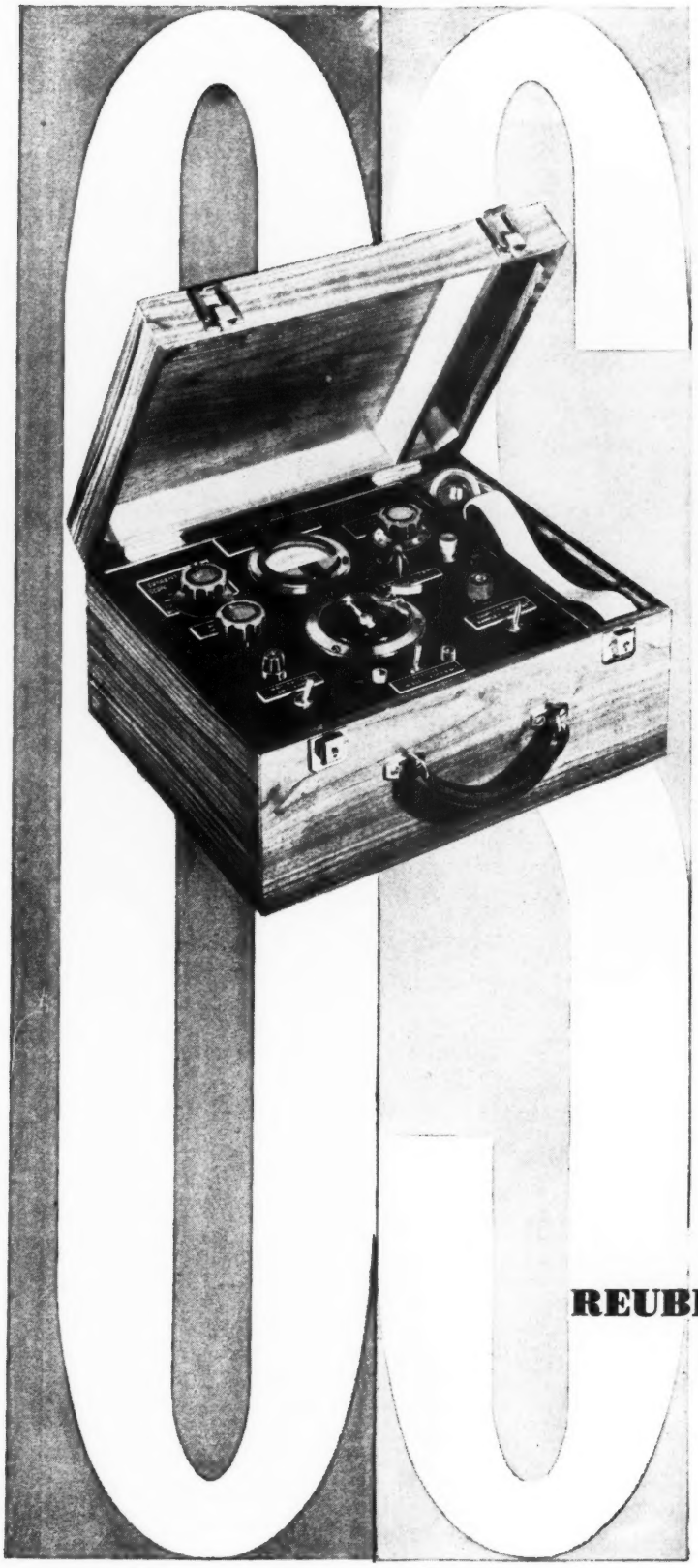

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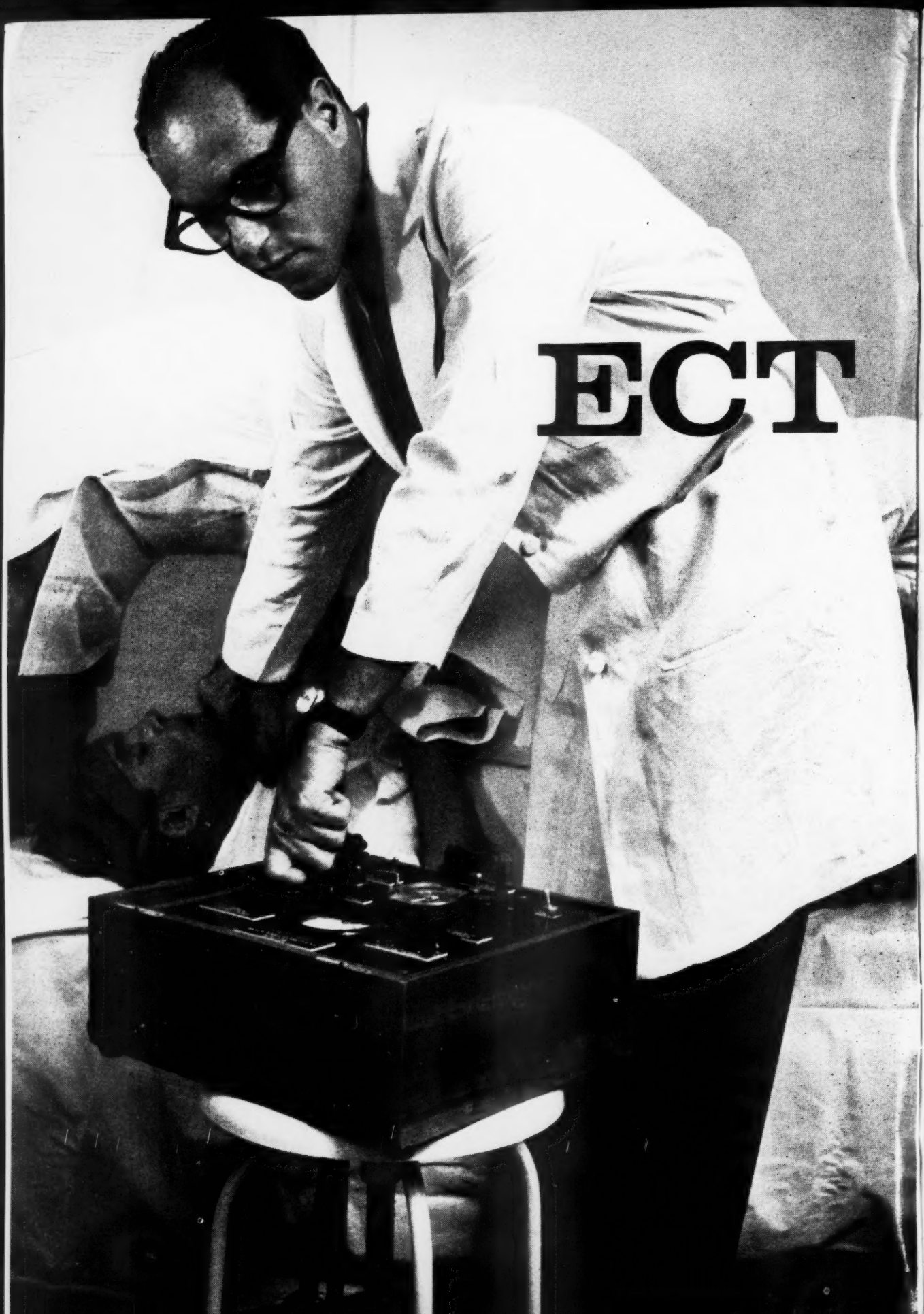
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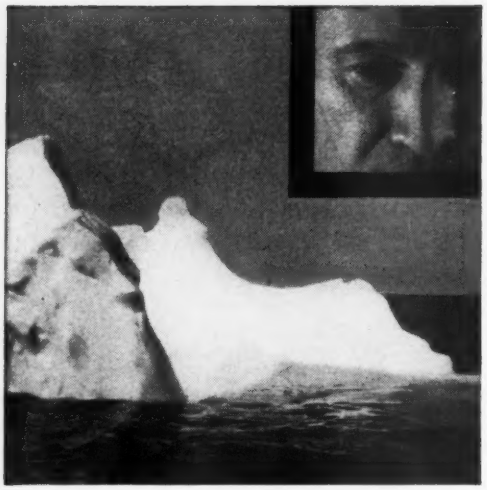

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1. Flipse, M. J.: Clin. Med. 4:1237 (Oct.) 1957. 2. Hutchinson, J. T.: Paper presented, American Psychiatric Association, Philadelphia, Pa., Nov. 17, 1956. 3. Sarwer-Foner, G. J., and Koranyi, E. K.: Canad. M. A. J. 77:450 (Sept. 1) 1957.

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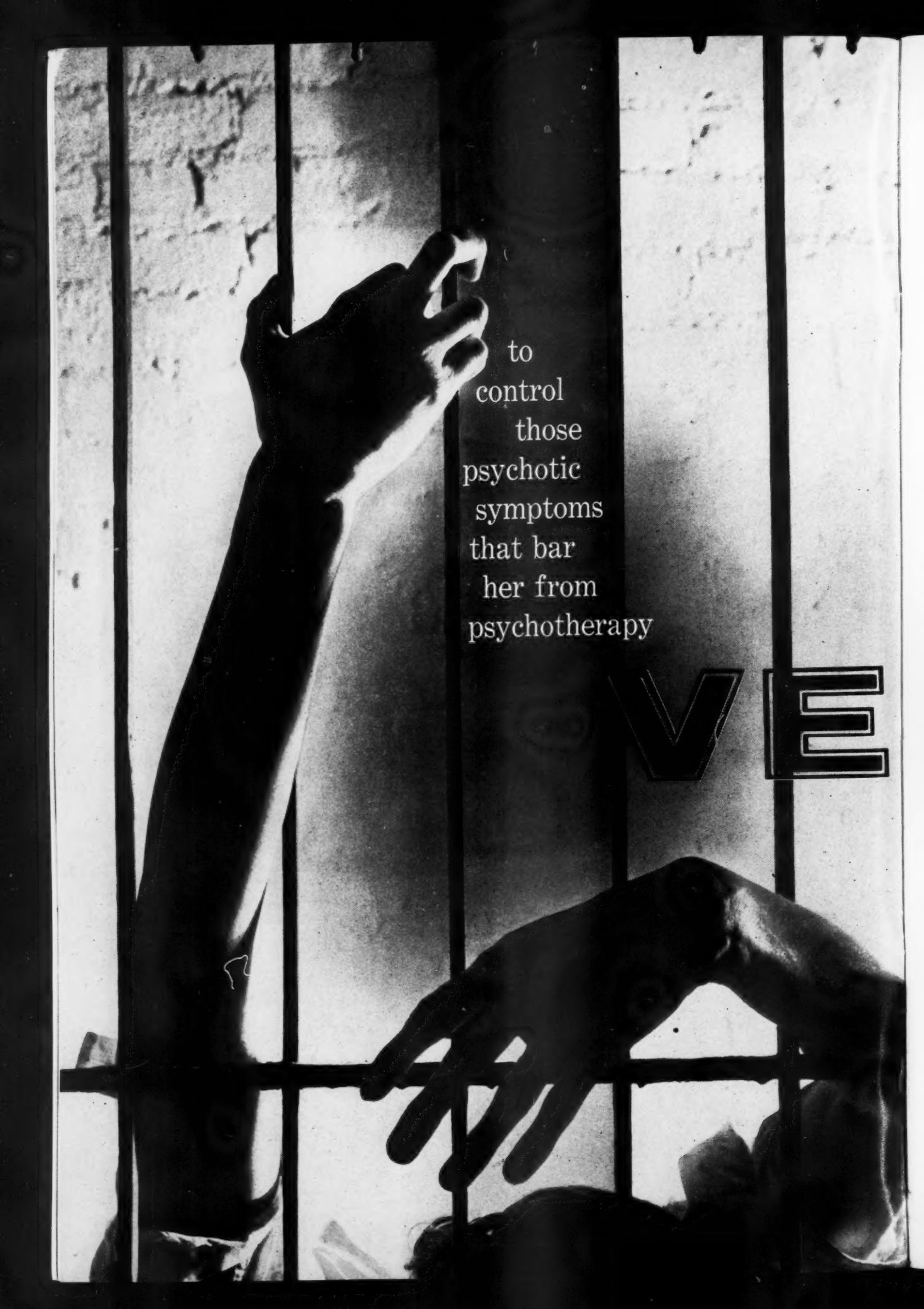
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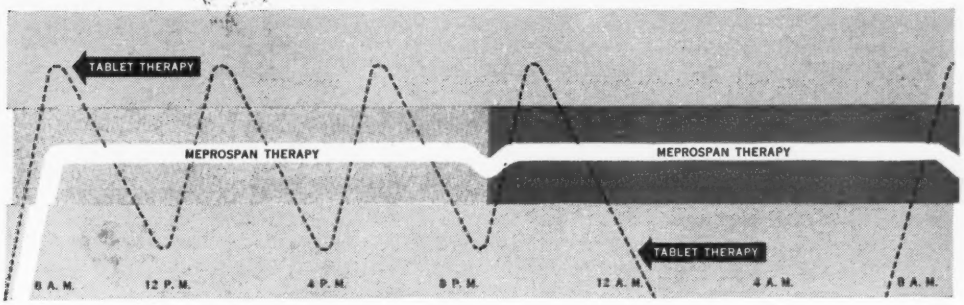

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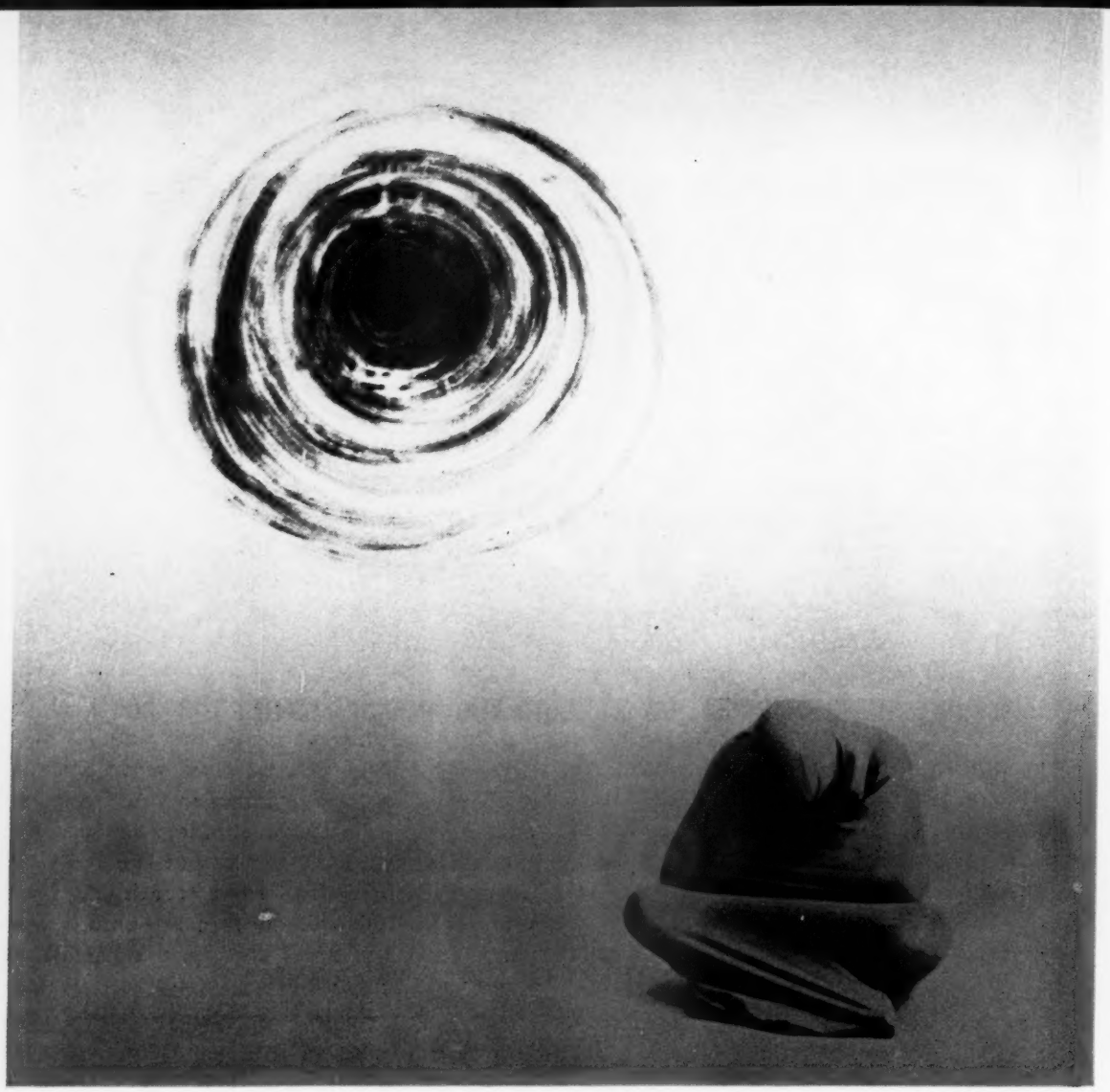

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DISEASES *of the* Nervous System

A PRACTICAL JOURNAL ON PSYCHIATRY AND NEUROLOGY

Combination Carbon Dioxide-Electroshock Treatment

ROBERT A. RICHARDS, M.D.

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Although the modes of action of carbon dioxide (CO_2) inhalation treatment and electroshock (EST) treatment are not known,[11,18] they have some actions in common, so that combination CO_2 and EST might be more effective than either treatment alone.[19] Several studies have shown that both CO_2 and EST cause cortical depression and inhibition.[1,4,7,27] One theory as to the action of EST is that its effect is produced by acetylcholine release.[5,25] During EST, acidosis caused by an increase in blood CO_2 inhibits cholinesterase,[2,22] thereby favoring release of acetylcholine from brain tissue.[25,26] Similarly, acidosis caused by CO_2 inhalation inhibits cholinesterase,[7] thus favoring release of acetylcholine from brain tissue.[17]

In order to decrease fear of EST, barbiturates have been used successfully as pretreatment anesthetics[14] but have the disadvantage of depressing respiration. Not only is CO_2 a good anesthetic agent[16] and respiratory stimulant, but it is also administered with a high concentration (70%) of O_2, which has been found to prevent the occurrence of cyanosis during the apneic period of EST.[8] Pollock[24] found that inhalation of 30 per cent CO_2 in O_2 raised the convulsive threshold of patients receiving EST but he did not report the therapeutic results of this type of treatment. Jackman[10] found that giving a sufficient number of CO_2 breaths to cause convulsions helped four of nine depressed patients who received this treatment. Few have claimed that standard CO_2 treatment helps psychotic patients,[3] but a modified form of CO_2 treatment has been described as beneficial in the treatment of psychoses.[13]

From the Veterans Administration Center, Los Angeles, California, and the Department of Psychiatry, University of California School of Medicine, Los Angeles, California.

Method

For the above considerations, it was decided that combination CO_2-EST treatment should be given a therapeutic trial. In order to determine if combination CO_2-EST was superior to EST alone, patients who had failed to respond to several previous courses of EST were given a course of combination treatment; and patients who had been receiving maintenance EST as needed were given CO_2-EST instead. Prior to starting EST, every patient studied in this investigation had an electroencephalogram, an electrocardiogram and an x-ray of the spine. At least ½ hour before each treatment, hyoscine, gr. 1/100 was injected intramuscularly but no other medication was given. An Electronicraft or a Reiter electroshock machine was employed except in the threshold studies, for which an Offner machine was used. After a grand mal seizure had been initiated, a much smaller current was allowed to flow for the duration of the seizure in order to decrease the severity of the muscular spasm as described by Alexander.[1] When combination treatment was given, the CO_2 was preceded by a few (8-13) breaths of nitrous oxide, then 30 per cent CO_2 in O_2 was given till the patient developed muscle tremor and rigidity, after which the mask was removed and EST given immediately. In every instance enough CO_2 was administered to render the patient unconscious before the EST. Various physiological phenomena occurring in both types of treatment were measured, and patients' attitudes toward both types of treatment were determined.

Eight male patients with chronic schizophrenia who had been ill for several years and who had shown no improvement or only transient benefit from several courses of EST were chosen at random as subjects. The patients in this group had an average dura-

tion of illness of eight years. They had received an average of four previous courses of EST totaling more than 55 EST treatments. Each patient was given a course of combination CO_2-EST consisting of approximately the same number of treatments as received in the last course of EST (Table I). Treatments were given three times per week and during the course no concomitant therapy (insulin, group therapy, tranquilizing drugs) was given. The average number of CO_2 breaths per treatment varied from 31 to 44 (Table I). A few days before the beginning of treatment and again within two weeks after its termination each patient was rated by means of the morbidity score from the interview scale of the Multidimensional Scale for Rating Psychiatric Patients (MSRPP).[15] Two of these ratings were made by the author, the remaining six by independent observers. In addition, each patient was rated by independent observers on a three-point clinical scale as to response to treatment immediately after and one month after treatment.

TABLE I

Number of EST and CO_2-EST Treatments, and CO_2 Breaths Therapeutic Results of CO_2-EST Treatment.

	EST			MSRPP scale		Clinical scale* after treatment	
Patient	in last course	CO_2-EST	Aver. CO_2 breaths	Pre-treatment	Post-treatment	Immediately	1 month
R.B.	18	18	44	26	29	None	None
S.D.	27	21	43	41	25	Social	Admin.
A.K.	18	18	41	35	26	Social	Social
C.L.	27	20	41	31	18	Admin.	Admin.
J.R.	6	13	42	28	22	None	None
F.R.	20	20	42	29	12	Admin.	Social
R.R.	21	14	31	44	28	Admin.	None
T.W.	18	18	43	27	34	None	None

*Social: Social Improvement—Patient is well enough to leave the hospital.
Admin.: Administrative Improvement—Patient is better behaved on the ward or takes more interest in activity programs.
None: No Improvement.

Results

Six of the eight patients in this group showed some improvement on the MSRPP after treatment (Table I), but still presented moderate to severe evidence of mental illness. The MSRPP corresponded quite closely with the clinical rating. On the latter scale only two patients attained social improvement one month after treatment (Table I) and one of these relapsed a short time afterward and became markedly psychotic. The other patient improved sufficiently so that he could leave the hospital.

Two male patients with chronic schizophrenia who had been on maintenance EST, receiving treatment as needed, for several months were given combination treatment instead of plain EST. Patient N. J. had been ill for 12 years and had received 164 EST treatments, while patient W.W. had been ill for 11 years and had received 150 EST treatments. N.J., who had required 16 EST's during the preceding seven month period, required 15 CO_2-EST treatments in the next seven month period. W.W., who had required nine EST during the preceding three months, required only five CO_2-EST during the next three months. However, as he had been gradually improving for several months prior to the institution of combination treatment, the frequency of EST had been gradually decreasing. This patient had been receiving 150-300 mg. chlorpromazine daily for four months before the start of this study and continued to receive the same dose of chlorpromazine for the entire duration of the study.

In addition to the clinical therapeutic results, other phenomena common to both types of treatment were studied in 22 patients, each of whom received one or more combination CO_2-EST treatments. Seven of the patients who had received a full course of combination treatment were given electroencephalograms two to three weeks after treatment. In no instance was the record different from that which would be expected in a patient who had just completed a course of plain EST.[11] The electroencephalograms in three instances were normal; the other four showed abnormal, non-focal, slow waves consistent with EST. Each of the 22 patients who received combination treatment had a post treatment x-ray of the spine and in no case was there any evidence of trauma due to treatment. The time required for recovery of consciousness after each type of treatment was recorded. This averaged eight

minutes for 91 plain EST's and 6 minutes for 121 CO_2-EST's. This difference was not statistically significant. In 19 patients the average length of the seizure with plain EST and with CO_2-EST was measured, and in every instance found to be shorter with the combination treatment (Table II). The average duration of the seizure was 45 seconds in 162 plain EST treatments and 34 seconds in 164 CO_2-EST treatments. This difference was highly significant. ($P<.001$.) Except for this decrease in total duration, the seizure in combined treatment followed a typical grand mal pattern.

TABLE II

Length of Seizure With EST and CO_2-EST Treatment (Sec.)

Patient	CO2-EST		EST	
	No.	Average length	No.	Average length
A.B.	1	25	4	41
W.B.	4	37	2	45
R.B.	18	30	3	37
S.D.	21	42	19	51
P.F.	1	45	5	45
N.J.	11	35	12	48
A.K.	17	32	16	46
C.L.	20	30	7	49
B.M.	1	32	15	43
T.P.	3	37	20	43
J.R.	13	30	1	55
F.R.	19	33	2	38
D.R.	1	25	6	45
R.R.	11	39	12	43
F.S.	1	28	2	48
S.S.	1	40	5	44
E.S.	2	30	15	47
W.W.	3	36	15	41
T.W.	16	35	1	45

In order to observe the effect of a muscle relaxant, each of two patients was given two mg. of decamethonium bromide (Syncurine) intramuscularly two minutes before a combination CO_2-EST treatment. The drug markedly diminished the muscular spasm but did not apparently increase the degree of apnea or produce any other adverse effect.

Continuous electrocardiograms of 10 patients were taken from a few seconds before the seizure to a few minutes after its termination. They could not be interpreted for the period of the seizure itself because of interference from the muscle spasm. The findings with plain EST were consistent with those reported by other workers.[6,23] The heart rate generally increased after treatment, and arrhythmias and extrasystoles occurred rarely. Electrocardiograms of the same patients were obtained while they were undergoing combination treatment. Inhalation of 30 per cent CO_2-70 per cent O_2 has been reported to produce sinus tachycardia or arrhythmia in 60 per cent of patients.[13] In the present study, in six cases there was no difference between the EKG tracing taken after EST and after CO_2-EST treatment. In two cases there was sinus arrhythmia without CO_2 but not with it. In one case there were sinus tachycardia and ventricular premature systoles with CO_2 but not without it; and in one case there was a partial block with CO_2-EST but no delayed conduction with plain EST.

CO_2 has been found to raise the convulsive threshold to EST.[24] A study was made of the convulsive threshold of eleven patients receiving EST. In all of the cases a constant total stimulation time of two seconds with a slow current rise for 1½ seconds was used, while the current was increased stepwise in increments of 100 milliamperes. Usually several stimulations with repeatedly increasing current dosage were given, several petit mal seizures thus being produced before a current that would cause a grand mal seizure was reached. However, since an immediately preceding petit mal seizure is known to raise the convulsive threshold,[12] on each treatment day a higher initial current dosage was employed, till the lowest current which would produce a grand mal seizure at the first stimulation was determined, and this was considered the threshold. None of the 11 patients had a convulsive threshold over 300 milliamperes (Table III). In all of these patients the convulsive threshold with combination CO_2-EST treatment was also determined (Table III), and in 9 cases found to have been increased. Since the threshold normally rises during a course of EST,[11] these measurements of threshold were made alternately with plain EST and CO_2-EST.

As CO_2 was always given in a 30 per cent CO_2-70 per cent O_2 mixture after preliminary N_2O inhalation, the effect of O_2 and of N_2O inhalation on convulsive threshold with EST was also studied. In five patients, 15 breaths of N_2O immediately preceding EST

TABLE III

Convulsive Threshold with EST and CO_2-EST Treatment (ma.)

Patient		W.B.	S.D.	P.F.	N.J.	A.K.	J.M.	T.P.	F.R.	R.R.	S.S.	T.W.
Convulsive Threshold	EST	300	300	300	300	300	300	300	200	300	200	200
	CO_2-EST	600	300	400	300	400	400	400	500	500	300	300

did not change the threshold. In another five patients, inhalation of a 95 per cent O_2-5 per cent CO_2 mixture for two minutes preceding EST did not change the convulsive threshold. Therefore, the observed rise in threshold with CO_2-EST treatment was caused by the CO_2, not the N_2O or O_2.

In 10 patients, by means of a Millikan oximeter,[21] continuous recordings of the percentage of blood O_2 saturation during each type of treatment were made from a few minutes prior to electrical stimulation till a few minutes after the end of the seizure. Whenever these measurements were made, the stimulating current was shut off as soon as the seizure had been started, so that the oximeter would not be affected by the current from the EST machine. The duration of the period of hypoxia with each treatment was measured from the oximeter graph (Table IV). In most cases CO_2 decreased the period of hypoxia and this decrease was statistically significant ($P<.001$). The difference between the pretreatment resting O_2 saturation and the lowest O_2 saturation reached during the treatment gave the decrease in O_2 tension for that treatment (Table IV). In all cases CO_2 decreased the degree of hypoxia with EST and this decrease was highly significant ($P<.001$). The effect of CO_2 was shown most clearly, however, by a comparison of the areas under the base line of the graph, which were proportional to the total amount of hypoxia occurring with each type of treatment (Table IV). These results were highly significant statistically ($P<.001$).

The oximeter findings correlated well with the observed effects on respiration. Whenever CO_2 was given, the post-treatment apneic period was either shortened considerably or, as in most cases, eliminated entirely.

All of the patients were questioned as to their feelings toward both types of treatment. All described fear and dislike of EST and the majority reported that breathing CO_2 before EST did not in any way change their feelings about the treatment. Two stated that they found the combination treatment slightly less unpleasant. Three preferred plain EST. Patients' attitudes toward treatment and their comments about the meaning of the treatment to them were essentially the same for each type. In general, they were reluctant to admit that EST had helped them and none believed that combination treatment had been of more help than plain EST. One patient, who actively resisted combination treatment, ascribed his fear to remembrance of several operations with gas anesthesia. He also actively resisted plain EST. A few patients at first objected to the mask being placed over their face, but after a few treatments usually lost their apprehension and cooperated in taking the treatment. Severe treatment anxiety, described by several authors[13,20] as occurring frequently during a course of CO_2 treatment, either did not ap-

TABLE IV

Measurements of Hypoxia with EST and CO_2-EST Treatment

Patient		A.B.	R.B.	S.D.	N.J.	A.K.	T.P.	J.R.	F.R.	D.R.	R.R.	F.S.	S.S.
Duration (sec.)	EST	180	150	180	180	110	80	120	100	180	160	140	120
	CO_2-EST	150	150	90	90	30	10	30	60	30	60	140	40
Decrease in O_2 tension (%)	EST	22	23	17	37	30	30	25	30	25	31	34	28
	CO_2-EST	17	13	11	2	5	5	10	7	8	2	28	3
Total Hypoxia*	EST	207	209	168	323	116	096	157	220	215	318	301	257
	CO_2-EST	115	105	041	016	006	004	031	020	021	001	211	011

*Area under base line of oximeter graph measured planimetrically.

pear or was obscured by the greater fear of the EST itself. The incidence and degree of post treatment headache and confusion were the same for each type of treatment.

Discussion

Occasionally new treatments and procedures in psychiatry have been proposed, which, after much time and effort, have been proved of no or dubious value. It would, therefore, seem desirable for the advocate of a new treatment to subject it to a rigorous test at the time it is introduced. Such a rigorous test was considered the ability of CO_2-EST treatment to help chronic schizophrenic patients who had not been helped by several previous courses of EST.

This study did not indicate that combination treatment had any significantly different therapeutic result from plain EST. After CO_2-EST the majority of patients showed the same slight temporary improvement they had previously shown after regular EST. Only one patient showed any lasting improvement that could be attributed to the combination treatment, and this result might well have been produced by another course of plain EST. The inhalation of CO_2 before EST apparently had no ill effects and seemed harmless in all respects. The addition of CO_2 to the EST did not alter the post-treatment electroencephalogram, increase the incidence of spinal injury, modify the pattern of the convulsive seizure, vary the time required for recovery of consciousness after treatment, or change the type or incidence of post-treatment electrocardiogram abnormalities. Although CO_2 did raise the convulsive threshold to EST, this is not a contraindication to its use, for the rise was slight.

CO_2-EST had certain advantageous effects. The seizure time was shortened, thus decreasing the duration of strain on heart and muscle, and lessening the period of hypoxia. This is in contrast to pure O_2 or a lower concentration of CO_2, which have the opposite, unfavorable effect of increasing the duration of the seizure.[8] CO_2 was less valuable when used as an anesthetic to decrease fear of EST and seemed to be inferior to intravenous barbiturates in this respect. The reason for this is unknown. It may be because a lighter plane of anesthesia is reached with CO_2 inhalation than intravenous medication or because gas anesthesia is more frightening *per se* than intravenous anesthesia. Or, it may be that since CO_2 itself causes treatment anxiety, this is added to the fear of EST. The use of intravenous barbiturates with CO_2 inhalation may be harmful[20] and was not tried.

Probably the most favorable action of CO_2 was its powerful stimulation of respiration. Oxygen has been recommended to decrease the amount of hypoxia with EST.[8] A mixture of 30 per cent CO_2-70 per cent O_2 not only serves this purpose, but also has the added advantage of almost eliminating post EST apnea. A lower concentration of CO_2 has not been found to have this effect.[8,9] Combination CO_2-EST would seem particularly applicable in the treatment of patients who have respiratory difficulty with plain EST. CO_2-EST is also effective when used with a muscle relaxant (decamethonium bromide) and further studies of its use with a more potent muscle relaxant (succinylcholine dichloride) are indicated.

Summary

Since CO_2 and EST are known to have some actions in common, the effect of giving EST to patients while they were anesthetized with a 30 per cent CO_2-70 per cent O_2 mixture was studied. Ten chronic schizophrenic patients who had not responded to several courses of plain EST were given combination CO_2-EST treatment. On the basis of clinical and psychological ratings only one patient showed any favorable therapeutic effect that could be attributed to the combination treatment.

Several physiological studies and laboratory tests were carried out on 22 patients who were given combination CO_2-EST treatment. Although in no way harmful, CO_2 was of little value when used as a pretreatment anesthetic to decrease fear of EST. Combination CO_2-O_2, however, was effective as O_2 in stimulating respiration, and was superior to O_2 in that it shortened the seizure and almost eliminated post-treatment apnea.

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Combination Electroshock and Drugs for Severe Chronic Psychotic Patients

(Prognostic Value of Funkenstein Test)

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The effectiveness of newer drugs in treatment of a significant but small proportion of chronic psychotic patients, is now a well established fact. Unfortunately there is no available index for prediction of results of treatment in the chronic hospitalized psychotic, and there is still a huge reservoir of hospitalized psychotic patients who are not in the group sufficiently favorably affected by the new drugs. The two problems presented: (1) study of a possible technique for determining outcome of treatment, and (2) possible value of a "hyperintense" treatment consisting of drugs and electroshock, are the objects of the study here reported.

Previous reports of combination of drugs with electroshock deal with small numbers of patients of mixed degrees of chronicity and with particular emphasis on safety or danger of the technique.[1,2,8] The test of Funkenstein, et al.,[3,5] by classifying patients according to reaction to Mecholyl (methyl-acetyl-choline chloride), and to epinephrine, has been reported useful in relatively "acute" patients to predict outcome of electroshock treatment. Geocaris & Kooiker[6] have used this test in 25 chronic schizophrenic patients, but found none in the "favorable" groups. Funkenstein and co-workers[4] speculate whether epinephrine or nor-epinephrine predominance may influence response to electroshock.

Material and Techniques: From the large group of patients in Longview State Hospital, long under treatment with chlorpromazine, reserpine or a combination of the two, a group of 50 was chosen for this study: Most of them had, prior to drug treatment, much electroshock, some had had insulin and some lobotomy. See Table I.

The patients were rated according to the following practical clinical scale:

"A": Patients recovered from all active psychotic manifestations, having lost all delusions and hallucinations, with insight into previous delusions and hallucinations, with adequate affect, social and industrial adaptive capacity, equal at least to the pre-morbid level; and showing no overt hostility toward the hospital or its staff.

"B": Individuals recovered from most psychotic manifestations, but may not have lost belief in previously present delusional experience, who are able to make a satisfactory social and industrial adaptation away from the hospital or in the hospital under privileged conditions, whose improvement may be summarized as "a good social remission."

"C": Patients improved from the initial condition in significant ways, particularly in ability to communicate verbally, in diminution or absence of assaultiveness, incontinence, denudativeness, and other gross manifestations of psychosis, and in some diminution of psycho-pathologic manifestations such as delusions and hallucinations without actual resolution of these.

"D": Patients improved only slightly or not at all.

Ratings recorded one month prior to the study were compared with ratings one month after completion of electroshock. Only patients rated grade "B" or better are considered improved. Borderline ("B"—) cases were not significantly affected.

Testing according to the method of Funkenstein[3] was carried out prior to addition of electroshock treatment to the drug treatment regime with the following modifications: All three parts of the test, injection of physiologic saline solution, epinephrine, and mecholyl, were administered on the same day, with a 10 minute interval between tests; and the mecholyl was given subcutaneously as suggested by Geocaris & Kooiker. In addition to these standard substances a fourth injection was added: Nor-epinephrine 0.05 mg. in 0.5 cc physiologic saline, was injected intravenously and the systolic blood pressure followed as in the other parts of the test procedure for 10 minutes. A single patient had transient palpitation and dyspnea following this added procedure. Patients were classified in groups as described

From Longview State Hospital, Cincinnati, Ohio, and University of Cincinnati, Department of Psychiatry.

TABLE I—PROTOCOLS

Pts.	Sex	Age	Diagnosis	Hospitalized		Previous			Number of Elec. Rx.	Grade After	
				Under 5 yrs.	Over 5 yrs.	Lob.	ECT	Drug		Drug Alone	Added ECT
GROUP I											
R.E.	F	33	Schizo.	x		No	No	T	24	C	B
L.M.	M	40	Schizo.	x		No	Yes	R	—	Transferred	
J.K.	M	30	Schizo.	x		No	No	T	16	C	C
GROUP II & III											
C.D.	M	34	Schizo.	x		No	No	T	17	C	C
E.B.	M	53	Schizo.	x		No	No	T	12	C	C
E.G.	F	19	Schizo.	x		No	No	T	17	C	B
R.C.	F	42	Schizo.	x		No	No	T	17	C	B
R.P.	M	38	Schizo.		x	No	Yes	T	24	D	D
V.R.	F	39	Alcohol-CBS	x		No	No	T	18	B	B
L.B.	M	47	Schizo.		x	No	Yes	T	17	C	C
M.G.	F	29	Schizo.	x		Yes	Yes	T	15	C	C
I.F.	F	57	Schizo.		x	No	No	T	12	C	D
M.E.	F	39	Schizo.		x	Yes	Yes	T-R	18	D	C
A.F.	M	51	Trauma—CBS		x	No	No	T-R	13	C	D
F.M.#2	M	35	Schizo.	x		No	No	T	18	C	C
J.B.	M	44	Schizo.		x	No	No	T	17	C	C
G.B.	F	25	Schizo.	x		No	No	T	16	C	C
M.M.	F	37	Schizo.		x	Yes	Yes	T-R	22	C	C
R.S.	M	32	Schizo.	x		No	No	T	15	C	B
R.R.	M	33	Schizo.		x	No	Yes	R	24	C	C
C.A.	M	23	Schizo.	x		No	Yes	R	24	C	D
C.S.	M	28	Schizo.	x		Yes	Yes	T	—	Unsuitable	
F.J.	M	37	Schizo.	x		No	No	R	20	C	C
M.M.	F	25	Schizo.	x		No	Yes	T-R	13	C	C
D.S.	F	42	Schizo.	x		No	Yes	T	15	D	C
J.A.	M	64	Schizo.	x		No	No	T-R	24	C	C
M.L.	M	43	Schizo.	x		No	No	T-R	18	C	C
S.F.	M	41	Schizo.		x	No	Yes	T	20	C	D
GROUP IV											
M.G.	M	49	Schizo.	x		No	Yes	T	17	C	C
GROUP V											
D.H.	F	60	Schizo.		x	No	Yes	T	25	C	D
J.R.	M	19	Schizo.		x	No	Yes	T	24	C	D
D.I.	M	17	Schizo.	x		No	No	T	14	D	C
A.B.	F	45	Manic-Dep.	x		Yes	Yes	T	16	C	C
F.M.	F	31	Schizo.	x		No	No	R	10	C	B
P.D.	M	60	Schizo.		x	No	No	T	3	Fracture	
H.N.	M	27	Schizo.	x		No	Yes	T-R	19	C	C
E.R.	F	34	Schizo.	x		No	Yes	R	13	C	B
K.T.	M	47	Schizo.	x		No	Yes	T	21	C	B
T.M.	F	51	Involution	x		No	Yes	T-R	9	C	C
S.P.	F	54	Manic-Dep.	x		No	Yes	T	14	C	C
C.R.	F	22	Schizo.		x	No	Yes	T-R	21	C	B
GROUP VI											
K.S.	F	47	Involution	x		No	No	T-R	16	C	C
A.F.	M	39	Schizo.	x		Yes	Yes	T	23	B	B
B.S.	F	40	Schizo.		x	No	Yes	R	14	C	C
L.J.	F	34	Schizo.	x		No	Yes	R	18	C	C
E.S.	M	40	Schizo.	x		No	No	R	15	C	B
D.C.	M	36	Schizo.		x	No	Yes	T-R	14	C	C
I.I.	F	45	Psychoneur.		x	Yes	Yes	T-R	27	C	B
C.D.	M	52	Schizo.	x		No	Yes	T	17	C	C
D.M.	F	32	Schizo.	x		No	Yes	T-R	25	B	B

Funkenstein Grouping.

Lob.—Lobotomy; ECT—Electroshock Treatment. T—Chlorpromazine; R—Reserpine.

TABLE II

Classification of Funkenstein Groups

	Pts.	Improved	% Improved
"Favorable" Groups (Funkenstein Groups V and VI)	20	6	30
"Unfavorable" Groups (Funkenstein Groups I, II, III & IV)	27	4	15

TABLE III

Concurrent Chemotherapy

	Pts.	Improved	% Improved
A. Chlorpromazine	26	5	19
B. Reserpine	8	3	38
C. Chlorpromazine & Reserpine	13	2	15
Totals	47	10	21

by Funkenstein and co-workers[5] (Table II) according to the results of the standard tests.

Electroshock was administered with sine-wave current, initiated with a fixed "glissando" rise, maximum average current 250 m.a. with prolonged but diminishing current to soften the seizure, according to method of Tietz and co-workers.[9] Atropine, gr. 1/100 was given subcutaneously one-half hour prior to treatment. All patients were given three electroshock treatments the first week. Subsequent frequency was determined by clinical indications. Electroshock was terminated in the remaining patients after 8 weeks. Concurrent chemotherapy is shown in Table III.

Results: Three patients of the 50 did not complete the treatment outlined for reasons indicated in Table I (Protocols). In all, 847 electroshock treatments were given. No untoward reactions occurred regardless of which drug or drugs were being used concurrently. One mental defective patient, with organic brain syndrome, receiving reserpine, died of respiratory failure in electroshock in another study group. This patient had, through error, been included in a treatment group one morning.

In the entire group of 47, ten patients improved to "B" level, according to the rating scale, after addition of electroshock to the drug regime. No patients achieved the "A" level. The three patients whose pre-treatment level was "B—" showed no change"

The relationship of Funkenstein test classification to result of treatment is indicated in Table II. In the supposedly "favorable" groups V and VI (according to Funkenstein[4] and Pasquarelli,[7] using only the mecholyl response for prognostic rating) a slightly greater number of patients improved than in the "unfavorable" groups I, II, III, and IV, but the number is too small to be of differential significance.

Some problems of Funkenstein group classification were encountered: hyporesponsiveness to epinephrine and "flat" mecholyl curves, as well as five cases of extended (16 to 20 minutes) hypotension following mecholyl, a finding not previously reported. All of these were classified in combined groups II and III.

The response of the systolic blood pressure to intravenous nor-epinephrine was greater than the response to epinephrine in all but three patients, all of whom were receiving reserpine. Two were in group II and III and one in group IV. None of these three improved with added electroshock. The difference in responsiveness to these two substances had no relation to the Funkenstein groupings, nor relation to the outcome of treatment with added electroshock.

Discussion and Summary: In the group of severe chronic psychotic individuals here detailed, concurrent drug therapy did not add to the hazard of electroshock. This remained insignificant. The fact that 21% of these 47 "hard-core" patients remaining through the project improved significantly is important. No patient should be denied treatment of maximum vigor; and the vigor of treatment should be conscientiously maintained. Under such conditions the true benefits of occupational, recreational and psychotherapy can be achieved.

In chronic psychotic patients such as these it is evident that the Funkenstein test is of doubtful value in predicting outcome of treatment even when allowing for the fact that the test results in our patients may have been modified by drug therapy. We agree with Funkenstein that blood pressure response to epinephrine does not correlate with prognosis of electroshock treatment and would add that in chronic psychotic patients the response to nor-epinephrine and

to methyl-acetylcholine chloride is similarly non-prognostic.

Conclusion: (1) Addition of electroshock treatment to drug therapy in a group of chronic "hard-core" psychotic patients produced improvement in 21% of 47 patients. There were no serious side-effects of morbidity. (2) The Funkenstein test procedure was not usefully prognostic to predict outcome in these patients.

Authors' Note: Chlorpromazine used in this study was supplied by Smith, Kline & French Laboratories under their trade-named product Thorazine.

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Defense Mechanism of "Fading News Value of the Intolerable"

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There are many inner defenses against the threat of the painful; these range from simple disbelief to optimistic reassurance, from irony to a pun, from suppression to repression, from deja vu to slight depersonalization, from unwillingness to face the problem to syncope, etc. One defense, however, has so far not been described. This consists of viewing the intolerable in terms of its news value: a transformation that automatically ensures prompt lessening of its impact even though the painful fact itself remains unchanged.

The mechanism is difficult to detect because the outward manifestations are patently "stupid"; they invite the convenient explanation: "He's too stupid to know what's going on." Only after overcoming the initial reaction does one perceive the applicability of the comment made in "Hamlet": "Though this be madness, yet there is method in't." Modified to suit this defense, the comment would read: "Though the vestiges are those of neurotic stupidity, yet there is fear behind them."

I was first confronted with this mechanism about ten years ago, and I admit that I did not understand it. I fell for the "trick of stupidity" that overlies the problem. The editor of a major publishing house had accepted one of my books on marriage for publication; the standard routine of proposing "revisions" followed.

The editor's major theme was this peculiar complaint: "The examples you give are monotonous; sometimes the child blames the mother, sometimes the father. We need more variety." I did not mistake this for a representative editorial reaction; I knew that I happened to be dealing with a neurotic, malicious, "pompous ass" whose low level of intelligence was matched only by his conceit. I answered that the infant, baby or small child does not have the highly developed

news sense of an editor in a publishing house. In his ignorance, the child blames his parents, just because they are there. Whom else should the child blame—the bars of his crib?

Some years later, an acquaintance "confided" to me the opinion pronounced on my books by another editor, attached to a different publishing house. "He is not a bad writer," this man had declared, "but he always writes the same book." Once more, I misunderstood the reaction, and explained to my acquaintance that my favorite topic—psychic masochism—has many facets, and that each of my books deals with a different facet of the single large theme. Would it be fair to reject—si parva licet componere magnis—Joseph Conrad's "Typhoon" and "Lord Jim" because earlier works had also dealt with the sea?

My reaction was still the same shrug of the shoulders when I heard from my literary agent that a publishing house had written him as follows: "We are returning herewith Edmund Bergler's "Our Errors in Judgment," which we felt was too similar in content to Dr. Bergler's other work." This time I added, for good measure, a few not-too-flattering words about the editor's I.Q.

The irony of the situation (which I had not yet come to understand) was that I had failed to connect the facts. For years I have maintained the position that belief in, and application of, the principles of psychic masochism is possible only through a thorough psychoanalysis in which the analyst puts that psychic cancer in the center. Recently, at a party, a colleague reproached me for not "hammering away on my ideas in lectures." This man, a bitter and malicious enemy, was of course not interested in the problem of psychic masochism. His concern was in finding some material for gossip. I realized that perfectly well, and when his wife, entering the room, was greeted by his not too friendly rebuff ("Why don't you go to the room where they're dancing—I'm having an important scientific discussion with Dr. B."), I quickly interposed: "No, please stay; we're not having a scientific discussion. Your husband is just collecting material against me, and I am obliging enough to give it to him." When our "discussion" continued, I explained to this colleague that the problem of psychic masochism as "basic neurosis" cannot be solved by lectures: there are decisive inner obstacles to the acceptance of the concept, provided it claims more than footnote rating. These unconscious obstacles are present in psychoanalysts and laymen alike. It is futile to "hammer away" in lectures, I said; my opinions are disseminated in books, not in time-wasting, fruitless discussions.

To clinch my point, I reminded the colleague of his own utterances against me during a discussion that had taken place some years ago. This not exactly tactful move proved effective.

During my last summer vacation, a book sent to me for review made clear the interconnections that had eluded me for so long. The book was Franz Schoenberner's "You Still Have Your Head" (Macmillan, June, 1957). The author is a distinguished German intellectual, one-time editor of *"Simplicissimus,"* and possessor of a fine anti-Hitler record. Two of his earlier books are "Confessions of an Intellectual" and "The Inside Story of an Outsider."

Schoenberner's current book deals with the aftermath of a tragic event. One night, disturbed in his work by a radio going full blast in the next apartment (it was midnight), he knocked at his neighbor's door and made the polite request that the volume of sound be lowered. The neighbor, a young man living a "family life" with another man of his age (the author is not specific here, but does hint at homosexuality), reacted to the request by hitting Schoenberner with a blackjack. The blow broke a vertebra, with resultant paralysis.

The book recreates the author's meditations during eighteen weeks of hospitalization. At its core is one great self-justification: presentation of proof that he himself did not unconsciously provoke the attack. An erudite person, Schoenberner calls upon a whole galaxy of witnesses: from Archimedes to Winkelmann, from Job to Socrates and Heine. Especially revealing is the fact that he understands the masochistic provocative technique:

> As a rule, the great teachers of mankind were literally or at least figuratively crucified by their unteachable pupils. Some of the saints as well as

the sages had, of course, more or less asked for it by their outright provocative behavior. Even in "the glory that was Greece" a barefoot philosopher looking like a satyr could not go on forever spending his days and even his nights in endless sympoposium with elegant intellectual snobs like Alcibiades, Plato and Xenophon, or trapping harmless fellow-citizens in an apparently simple but actually most complicated game of questions and answers cleverly designed to convince them with irrefutable logic and a kind of gentle persuasion that they were complete fools who have never tried to think. This sort of public education was bound to come to a bad end, and a wise man should have foreseen that the rightly annoyed Athenians would one day become exasperated enough to put poison in his cup. One almost suspects that he was fully aware of this probability and that the wily old codger, at his trial, purposely played a last trick of his famous Socratic irony on the captive audience of his judges in order to prove for all posterity their colossal stupidity and his own immeasurable superiority. At any rate, his immortal apologia, carefully preserved by his pupils, was actually rather an eloquent plea for a death sentence, which gave him the opportunity to play such a marvelous role in the final climactic scene of his life that the spontaneous applause of his admiring public has never stopped for the last twenty-four centuries (p. 71/2*).

Archimedes, quietly working on his mathematical problem during the successful siege and capture of his native Siracusa by the Romans, was not impressed by the Roman soldier who entered his study, and admonished him rather sharply, "Do not disturb my circles." This, of course, was too much for a legionnaire. With a sort of conditioned reflex, but using only the shaft of his spear, he hit old Archimedes over the head, spattering one of the best brains ever evolved. . . . The poor ignorant fellow probably did not intend to kill, otherwise he would have used the sharp blade of his spear; he only underrated both his own force and the fragility of such an "egghead." . . . Without being entirely sure of his source, the writer seemed to remember that this innocent warrior, after learning that he had killed the famous Professor Archimedes, uttered in regretful surprise something like the Latin equivalent of "Whaddayouknow! Why didn't the snooty old bastard tell me?" Perhaps he had a point there, if you come to think of it (pp. 54/).

Winkelmann, the great archaeologist of the eighteenth century, was murdered near Trieste, on the way to Rome, by bandits who threw his half-naked body in the ditch. Perhaps if Winkelmann could have talked to the bandits in the most vulgar Italian slang, full of obscenities and blood-curdling curses, they would have felt that, speaking their own language, he was after all a man of flash and blood like themselves, only richer, and they would have enjoyed the practical joke of stripping him of his last shirt under a hilarious exchange of profanities and harmless whacks without even thinking of murder. But he was, of course, so terribly Appolonian and so immeasurably superior that the primitive emotions of these poor wretches exploded immediately in a wild paroxysm of furious humiliation, blind hate, and murderous rage, leaving only the irresistible urge to kill, to destroy this incomprehensible higher being (pp. 54-5).

In short, Schoenberner is quite knowing when it comes to judging others, but shies away from identical conclusions when he himself is involved. Nowhere is there any allusion to his own provocation: he must have been familiar with the vicious attitudes of drunken homosexuals. As a German, he undoubtedly knew all the details of the homosexual Roehm's rebellion against Hitler (Roehm was the gangmaster of the S.S. until the other gangster, Hitler, eliminated him.) The impression cannot be avoided that, after having survived Hitler's gangs and the rigors of French concentration camps, Schoenberner's inner wish to suffer finally caught up with him. It was an ironic climax, but then irony is an approach favored by the superego.

Although Schoenberner has some misconceptions about the genesis and "chemical composition" of psychic masochism (he seems to assume that the latter cannot develop when non-punitive educational methods are applied; he confuses guilt resulting from aggression with masochism, etc.), he knows enough to defend himself against the accusation of being "accident prone," and even presents some confirming material. Still, after declaring that he himself "never suffered from such masochistic tendencies" (p. 78), he concludes that he "could get along without really finding out whether his unconscious or any other blind power had willed and caused his present condition" (p. 239). The upshot is:

For any normal person the idea of being victimized by the inscrutable nefarious whim of his own unconscious was certainly much less tolerable and acceptable than the age-old belief that his misfortune has been ordained by the inscrutable will of God, of any god, or of Fate, which under the name of the goddess Ananke—Necessity—ruled over Zeus and all the other deities of the Greek Olympus (p. 232; my italics).

*Obviously, Schoenberner came—independently—to the identical conclusion I reached with regard to Socrates: that the philosopher wanted to die, and provoked his own death sentence. I pointed this out, a few years before Schoenberner did, in my book, "Fashion and the Unconscious" (Brunner's Psychiatric Books, 1954), pp. 250-254.

For me, the key words are those which declare that psychic masochism is "intolerable" and "inacceptable" even for a dying (Schoenberner was on the critical list) and honest man.

This statement gave me the cue for the reaction previously described. If, as has been known for a comparatively long time, the "pleasure-in-displeasure pattern" is "impossible," it is hardly strange that journalists and editors should hide behind the banal solution of valuing it only for its "news value" —a term which is virtually synonymous with "transitory." Isn't it simpler to say, "That's old stuff," than to accept the tragic fact that each and every human being is partial to psychic masochism, unconsciously?

New York, New York

Measuring Indirect Effects of Treatment on Chronic Wards

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It is often stated that the evaluation of drug-treatment is complicated by psychological factors. Staff-attitudes and the personality of the psychiatrist motivate the choice of treatment and milieu factors do have an influence on the effectiveness of drug-treatment. As Sabsin and Ramot[1] have pointed out, the social context within which pharmacotherapy is undertaken and transactional factors between the individual patient and his environment, have an importance in the overall evaluation of therapeutic effect. In psychiatric observation the influence of observers on the subjects and the influence of subjects on each other should be considered. The results of a new treatment might be better defined if the report on the effect of the treatment contains not only the observed changes in the treated patients but if it also makes reference to the situation in which the observations were made, and describes the changes in the non-treated members of the group as well. The present study is based on the assumption that treatment of individual patients has an effect on the ward as a whole. Evaluation of treatment should include measurements of the direct effects on the treated patients and the indirect effects on the ward.

With the use of placebos we may measure the "errors" and the contaminations resulting from the expectations of the observer and from the increased interest and attention on the part of clinical staff. However, it is seldom possible to eliminate the influence of the treated patients, the non-treated patients and the staff upon each other. The non-treated patients (the controls) will, with or without placebo, be influenced by (a) the treated patients, and (b) the staff who react to changes in the treated patients will inevitably transmit some of their reactions to the control group. Thus, placebo does not eliminate the need for consideration of the interaction effects. Rather, it is likely that placebo will obscure the interaction effects and what appears to be placebo effect may be due to the secondary effect of the treatment.

In this study, the control patients were not subject to the kind of psychological influences which are created by the placebo. The changes in the control group may be related to the fact that other patients on the ward received treatment. In order to emphasize the secondary, transmitted or interaction effects, it is perhaps correct to distinguish immediate, direct "physiological" effects of the treatment and the wider psychiatric results of the treatment which includes the secondary effects as well. The secondary effects are likely to be different according to the particular form of treatment. Drug-treatment, E.C.T. and lobotomy produce not only different direct effects but also create different over-all results. The present paper is con-

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cerned with the secondary effects of tranquillizers on a chronic ward.

The psychiatric ward is regarded, not as an incidental place where patients receive treatment, but as an entity which is bound together by the interaction of all, patients and staff, who are related to the ward. Any action and change which is directed toward one or another member of the ward is likely to have a more or less marked influence on the whole ward. Analysis of everyday experiences, through the medium of ward conferences, indicates that events such as the occurrence of disturbed behavior, increase of tension, or the unexpected improvement of some patients, are frequently traceable to changes which have primarily affected other ward patients or ward staff. The influences which may have widespread consequences on ward adjustment level, are manifold: the hospital's increased demand on staff time, or lack of orientation on the part of new personnel, disruption of communication due to shift changes or personal difficulties between staff-members. Diverting the attention of staff-members to other activities, staff anxiety regarding status, arrival or non-arrival of visitors, admittance of patients from other wards, and the active treatment of some of the patients all influence ward adjustment.

Following the introduction of drug-treatment on chronic wards, changes were observed in areas, such as, the patients' behavior, the level of tension and activity on the ward, and the movement of patients off the ward. The reputation of the ward amongst hospital personnel, the staff's attitude toward patients and toward their own vocation, and the allocation of occupational and recreational facilities also appear to have been affected by changed treatment methods. Many of these changes were considered to be due to the secondary effects of the drug-treatment. Since it appeared to be quite impossible to analyze all the changes which were attributable to drug-treatment, only a relatively simple item was investigated, that is to say, the changes in the non-treated patients were compared with the changes in the treated patients and observations were made regarding occupational therapy in relation to drug-treatment.

Method

The main emphasis was on the observations which were made by those members of the staff who are in close contact with, and interact with patients in the day to day life on the ward. Instead of a total assessment, behavior was described in separate items and the observations were recorded on a behavior list. Recording was done at two monthly intervals and it was made independently of the usual routine ward notes. The research staff functioned in two areas, guiding observation of the patients and conducting ward conferences. It was the task of the research staff to give orientation, to enhance the ability to perceive and to describe behavior manifestations, to form an opinion regarding staff attitudes, and to participate in the conferences wherein assessment was made. Meetings between ward and research staff were held once a week. Apart from giving orientation, the meetings were used to bring to light the attitudes which may color assessment by personal feelings, and to achieve censensus of viewpoints and opinions.

The ward staff was aware that these patients were under study, therefore it was expected that these patients would receive increased attention. The comparison between the treated and the non-treated group could be formulated: What is the effect of drug treatment and the attendant increased interest and attention to one group of treated patients on the remaining untreated patients on the same ward?

A behavior assessment list was constructed according to the recommendations of Wittenborn,[9] Goodrich,[3] and Shatin and Freed.[8] Interest was on the patient's appearance, her personal habits, her ability to comply with ward routine, her relationship with other patients and with ward personnel. The items were so selected that the application of the list required only the usual observation by the staff, and agreement was reached quite easily on the definition of the items. The items were extracted from the nursing notes and the meanings of the terms were illustrated in conferences, through discussion of examples. On the list, behavior was described by 25 items. The items were

grouped in two categories. The non-integrative, disruptive elements were grouped together as negative items. Those behavior elements which denote a trend toward integration within the group were positive items. (During the study, the usage of the terms "illness" and "wellness" was developed in order to cover the categories of the negative, disruptive items and the positive, integrative, adjustive signs.) A score was attached to each of the items and the condition of the patient was indicated by two figures—the sum of the positive and the sum of the negative scores. The negative items were scored serially from one to ten, indicating the increasing amount of non-integrative, disruptive behavior. The adaptive items were divided into two grades. The first ten items reflect a more marked trend toward constructive participant activity than do the other five items. In order to describe the difference between the two grades, the items in the former group were marked with a score of "3" and the items in the latter group with a score of "2." The items in each positive group were taken as being of equal value. The number of marked items on the list indicates the difference between behavior levels. Group data, derived for both positive and negative lists, were the means, standard deviations, coefficient of variations (v), standard errors of means differences, and critical ratios of means differences to standard errors. The list is shown in the appendix.

Drug-treatment consisted of the administration of tranquillizers, chlorpromazine (200-300 mg. daily) and Serpasil (3-5 mg. daily). One group of patients also received intensive occupational therapy in addition to the drug-treatment. Therapy was structured according to the play-group method of Rose et al.[6] The group met daily for two hours under the leadership of an occupational therapist.

Material

The study was conducted on two wards which are occupied by chronic female patients. (Ward A and Ward B.) There were 67 patients on Ward A and 58 patients on Ward B. The patients on Ward A had very few social contacts, visitors were rare, family contacts almost non-existent, and staff-patient relationships were restricted to routine physical care. The patients were confined to the ward most of the time. The population was static and transfers to and from the ward occurred seldom. The patients on Ward B participated more freely in occupational activities, some of them were engaged in hospital industries, contacts with relatives were better maintained. The ward population was more fluid on B. The terms "poorly adjusted" (Ward A) and "better adjusted" (Ward B) were borrowed from Shatin and Freed[8] to indicate the difference between the wards. According to the classification of hospital strata of Cunningham-Dax[2] the poorly adjusted ward would correspond to type E—"for those needing close supervision because of their being very disturbed or in consequence of their severe regression or deterioration." The better adjusted ward would correspond to type D or C, "for patients whose movements are restricted or who are on closed wards because of their resentment against detention or their delusions." There was a difference between the wards regarding average age and average length of hospitalization. The two wards differed markedly regarding the ward-average of behavior scores on the assessment list at the beginning of the study:

TABLE 1

Comparison of the Two Wards in the Study According to Age, Length of Hospitalization and Behavior Score.

Ward	Number of Patients	Average Age	Aver. Length of Hospitalization	Positive Negative Aver.	Score
"Poorly Adjusted"	67	47.6 yrs.	18.5 yrs.	5.0	19.2
"Better Adjusted"	58	43 yrs.	11.2 yrs.	10.2	8.2

On the poorly adjusted ward (type E) the average age was higher and the average length of hospitalization was longer. The average positive score was lower and the average negative score was higher on the poorly adjusted ward.

On the poorly adjusted ward 20 patients were included in the treated group. Ten of

the treated patients also received intensive occupational therapy and 20 patients were selected as controls. On the better adjusted ward, 20 patients were treated and 14 served as controls. Controls were selected from those patients who did not receive treatment, who remained on the ward during the whole period of study, and who could be adequately assessed. The selection of the groups was also guided by treatment considerations, hence the control groups had a better pre-treatment average score than the treated patients. All the cases in the study had a diagnosis of schizophrenia.

Results

The results are demonstrated by the changes in group data regarding positive and negative behavior scores. The following data indicate that improvement occurred on both wards. On the better adjusted ward both the treated and the non-treated groups improved. On the poorly adjusted ward, improvement was seen only among the treated group. Among the treated patients on the poorly adjusted ward, the improvement in the subgroup which received occupational therapy was more marked than in the subgroup which received drug-treatment only. In the latter subgroup, the mean scores indicated improvement, however, the change was below the one per cent level of significance.

A difference is seen between the groups on the better adjusted ward when the changes in the positive and negative items are compared. The treated patients improved very significantly regarding both the positive and the negative items. Among those not treated, only the improvement on the positive scores was significant.

All the groups showed a decrease of variability on the positive scores. The patients in each group became more similar to each other regarding the adaptive aspects of behavior. There was a trend toward reaching a uniform level of adaptive behavior. The changes in the negative items were less uniform and most of the groups showed an increased variability regarding changes in disruptive behavior.

Discussion

The described differences between the two wards might explain the lack of secondary effects on the poorly adjusted ward. It would appear that those patients, whose life lacked the stimulation of social interaction, were resistant to changes in the environment. However, this group is not immune to social

TABLE 2

Behavior Assessment of Treated and Not-Treated Groups on Two Chronic Wards

			—— Pre-Treatment ——			—— Post-Treatment ——					
	Group	Number of Patients	Means	S.D.	V.	Means	S.D.	V.	C R (Means)	Significance (1%)	Variation
Positive	1	20	2.40	4.16	173	8.20	7.00	85	3.65	sign.	decrease
Scores	2	20	6.50	7.35	113	8.50	7.45	88	2.00	not sign.	decrease
	3	10	3.60	4.78	133	12.10	5.46	45	7.08	very sign.	decrease
	4	10	1.20	2.99	248	4.30	6.15	143	2.54	not sign.	decrease
	5	20	9.70	6.85	71	17.80	8.20	46	6.86	very sign.	decrease
	6	14	8.93	5.83	65	17.71	3.45	19	4.85	sign.	decrease
Negative	1	20	26.00	9.35	32	11.35	7.20	63	5.79	very sign.	increase
Scores	2	20	14.05	9.90	70	11.05	7.85	71	1.50	not sign.	no change
	3	10	27.20	7.25	27	7.50	6.67	89	5.95	very sign.	increase
	4	10	24.80	10.92	44	15.20	5.42	36	2.97	not sign.	decrease
	5	20	12.25	7.45	61	2.40	3.30	137	5.93	very sign.	increase
	6	14	8.28	5.48	66	7.92	8.30	104	0.15	not sign.	increase

Group 1: Poorly adjusted, treated.
Group 2: Poorly adjusted, not-treated.
Group 3: Poorly adjusted, treated, O.T.
Group 4: Poorly adjusted, treated, no O.T.
Group 5: Better adjusted, treated.
Group 6: Better adjusted, not-treated.

influences. The occupational therapy which was provided for a subgroup on the poorly adjusted ward, was so structured as to provide an intensive, stimulating social influence. The general improvement of this subgroup was more marked than that of the subgroup which received drug-treatment only. This finding is in accord with the observation by O'Reilly and Handforth[4] who commented upon the effectiveness of occupational therapy for severely disturbed chronic patients. Recently, Cameron, Laing and McGhie[1] demonstrated good results from the manipulation of the staff-chronic patient relationship in an occupational setting.

In our sample the control group on the poorly adjusted ward failed to follow the improvement of the treated group. It would appear that on a poorly adjusted ward only well structured, intensive social influences, such as the described occupational therapy, can be effective. Ill-defined milieu changes, such as the improvement in the treated group did not affect the controls appreciably. On the other hand, the patients, whose life is not so impoverished, and who are exposed and responsive to social contacts will "pick-up" the change in environment. Thus we may say that the reaction to environmental influences depends, not only on the treatment employed, but also on the condition of the group at the beginning of the treatment.

It was noted that, parallel to the improvement in the treated patients on the better adjusted ward, the controls showed a marked improvement mainly on the positive, integrating behavior items. Lack of participation and inadequate social interest are the areas wherein we can expect favorable responses to milieu changes. Behavior items which indicate active resistance and disruptive trends are less responsive to changes in the milieu. In some of the control patients an increase of disruptive activity was noticed. This reaction might be regarded as being similar to the temporary increase in destructive behavior following the introduction of group therapy in a chronic ward (as reported by Frank[5]). This reaction was seen in those patients who did not receive drug-treatment. Apparently, tranquillizers counteract the disruptive trends which may be expected upon initiating a change in the management of the ward.

The improvement of the untreated patients on the better adjusted ward may be attributable to several factors. Contact with the treated, improved patients and their increased activity and better socialization is likely to provide a stimulus toward similar changes ("interaction effect"). Decrease in disruptive events on the ward releases the potentialities for socially adaptive behavior. Those staff attitudes which encourage and reward positive behavior, gain momentum from the improvement in the treated group and change the attitudes and expectations towards the not-treated group as well.

An important result of drug-treatment appears to be the change in the expectation of staff regarding patients' behavior. This shift in staffs' expectation of patient-behavior has influenced favorably the better adjusted, untreated patients. On the better adjusted ward, the improvement in both the treated and in the control group consisted of fulfillment of certain social standards which have been set by the staff. Improvement in self-care, work, and interest in ward activities marked the better socialization of these patients. Whereas negative, disruptive items were either ignored or countered by prohibitive measures on the part of the staff. The methods for promoting active socialization involved some form of immediate gratification. Schematically, we can visualize the events on the ward as a three-phase process: pharmacotherapy reduces the amount and frequency of disruptive behavior; the patient gains in acceptance by the staff; increased acceptance by staff promotes adaptive behavior on the part of the patient. On a poorly adjusted ward, the latter effect is likely to remain confined to the treated patients. Whereas, on a better adjusted ward, improvement of the whole ward, including the non-treated patients, can be expected as a result of drug treatment. The significantly greater improvement in the occupational therapy subgroup indicates that a well structured social therapy enhances the results of drug-treatment and it is possible that improved nursing methods on chronic wards

may achieve results which are similar to those of tranquillizers.

The above results indicate that, apart from the treatment of individual patients on the ward, we have to consider the treatment of the whole ward. Treatment of the ward calls for comparable description and classification of patients. Assessment of adjustment level is necessary for outlining any treatment plan, for estimating the need for drug-therapy, for utilization of the resources for social therapy. As drug-treatment often has marked effect on the non-treated patients as well, demonstration of the secondary, indirect effects would further the evaluation of drug treatment results. Separate assessment of disintegrative and adaptive behavior items might assist in distinguishing direct and indirect effects of pharmacotherapy. This method is applicable for the comparison of treated and non-treated groups. Similarly it might also be useful for assessing the effect of various other factors, such as occupational therapy, change in personnel or structural changes on the ward.

Summary

An empirical behavior list is presented in order to assess the amount of disruptive, non-integrative behavior and in order to assess the degree of adaptive behavior among chronic patients. The importance of describing the level of adjustment for the ward is emphasized. Results of treatment consist of a direct effect on the patient as well as the indirect, secondary effect on the other patients and upon staff. Combined occupational and drug therapy is significantly more effective than drug treatment alone. The secondary effects depend largely on the adjustment level of the ward. On a poorly adjusted, regressed ward, the treatment effects are likely to be confined to the treated patients, whereas better adjusted patients benefit appreciably from the changed milieu which was created through the treatment of other patients. The secondary effect appears to be mediated through staff attitudes and is manifest in improved acceptance and socialization of the patients.

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APPENDIX

Behavioral Assessment List

Positive Items		*Negative Items*	
Initiative in work	3	Mute or repeats meaningless phrases	1
A good worker if asked	3	Ignores activities	2
Helps other patients	3	Has to be dressed	3
Interested in appearance	3	Resents approach	4
Looks after herself	3	Chews and swallows things other than food	5
Takes part in conversation	3	Dirty habits	6
Mixes with other patients	3	Manneristic movements and postures	7
Interested in O.T.	3	Moving about constantly and/or noisy	8
Takes part in O.T. and/or games	3	Assaultive and destructive occasionally	9
Reacts to entertainment	3	In seclusion	10
Helps cleaning with prompting	2		
Neat and clean with prompting	2		
Reads and/or draws pictures	2		
Enjoys being talked to	2		
Answers sensibly	2		

Use of Sustained-Release Chlorpromazine in the Management of Hospitalized Chronic Psychotic Patients

JOHN VASCONCELLOS, M.D., and ALBERT A. KURLAND, M.D.

Introduction

The advent of chlorpromazine and reserpine in 1952 as the first of the tranquilizers, and their subsequent widespread application in the treatment of various forms of mental disorders have given rise to large psychiatric patient populations receiving prolonged and intensive drug therapy regimen. This phenomenon has resulted in new operational difficulties which have heretofore been avoided. One of the most serious operational effects of expanded drug treatment programs has been the intensification of nursing problems in the area of treatment administration, an area which has always suffered from a chronic deficit of adequately trained hospital personnel. To complicate the supervision of drug administration even further, many chronically ill psychotic patients developed a marked resistance to taking medication as frequently as is now required, and they often surreptitiously discard the medication or refuse to take it altogether. Another complication resulting from our current T.I.D. and Q.I.D. schedules has been that patients assigned to various rehabilitative or occupational therapies have had to report back to their respective nursing stations for medication, thus interrupting activities and adding to the administrative difficulties in the management of these patients. All of these artifacts of our current drug treatment programs indicate an obvious need for a form of medication which will produce prolonged effects and thus render its administration considerably simpler.

Recently a sustained release form of medication has been introduced by the Smith, Kline & French Laboratories, tradenamed "Spansule." The preparation consists of capsules containing hundreds of tiny pellets, approximately two-thirds of which are coated with different thicknesses of a digestible material. From the uncoated pellets the medication is readily assimilated to produce the initial therapeutic effect, whereas the coated ones disintegrate gradually in the process of digestion to release the medication continuously over a period of eight to ten hours. As critical appraisals of "Spansule" preparations have accumulated, it seems to be the general opinion that they offer many special advantages.[1,2,3,4,5] There is greater convenience in administration by reducing multi-dosage to a single daily dose; avoidance of peak concentrations by providing instead a blood level plateau with a better continuity of drug action; elimination and reduction of undesirable side effects resulting from peak concentrations following administration of drugs T.I.D. or Q.I.D.; avoidance of what is konwn as the "missing pill" and the consequent exacerbation of symptoms that occurs when patients forget or omit to take their medication; avoidance of need to wake sleeping patients to take medication; alleviation to some extent of the anxiety of tense pill-conscious patients.

In view of these observations, considerable interest has been generated in the sustained release action of the newly introduced Thorazine Spansule capsule medication. However, at the present time there is little information available regarding the relative effectiveness and practicality of this type of preparation in a psychiatric setting. An investigation has therefore been carried out to develop insight into the advantages and disadvantages of Spansule medication administration in the operational setting of a state psychiatric hospital as compared to a multi-table daily dosage schedule, with particular emphasis laid upon the patients' subjective reactions to reduced patient-personnel contacts, the reaction of ward personnel to the lessened administration time, the incidence of side effects noted with both types of medication, and comparative dosage requirements.

From Spring Grove State Hospital, Baltimore 28, Maryland.

Procedure

A group of 36 chronic, psychotic patients who had been on various dosages of Thorazine for several months or longer were chosen for this study. Evaluations of the response of these patients to treatment with multi-dosage Thorazine tablets were then made, utilizing information obtained from progress notes, nursing notes, and interviews with nursing personnel who had known the patients for over a period of several months or longer. The grading system of these evaluations was essentially clinical in nature and consisted of the following categories: a +++ response indicated that the patient was considered to have improved sufficiently on regular Thorazine administration to be considered for parole; a ++ response indicated that the patient had moved from a more disturbed ward to a convalescent or open ward; and a + response indicated that the patient had shown some improvement in his ward behavior but not of sufficient extent to be considered for movement to a better ward. The categories no change and worse, which are self-explanatory, were also utilized in the evaluations. At the time of these initial evaluations the incidence of neurological complications, particularly those of a Parkinson-like nature or extrapyramidal symptoms, were also noted.

The patients were interviewed by one of the authors and their medication changed from multi-dosage to Spansule type capsule with a brief explanation of the nature of the change. The dosage level of the Thorazine Spansule capsule was determined as much as possible by the last dosage of the regular tablet medication, with the patient receiving a similar dosage in Thorazine Spansule capsules. This led to an initial dosage ranging from 200 to 1200 mg. administered in one to six 200 mg. Thorazine Spansule capsules given in one dose in the morning. If a patient's status appeared to have reached a plateau on regular medication, the dosage of the Spansule form was increased to determine whether any further improvement could be obtained. In no case was the dosage of 1200 mg. exceeded. It was subsequently observed that after several weeks' treatment the dosage could be lowered in many patients who had started initially with 800 to 1200 mg.

The patients were kept on Spansule medication for 12 weeks during which they were briefly interviewed at weekly intervals and the dosage of Spansule medication changed when indicated to meet the needs of an improving or regressing state. At the end of the observational period the patients were again evaluated on the grading system described above, and the incidence of side effects again noted. At this point, also, the subjective reactions of both patients and ward personnel to the new type medication were obtained. Representative case histories for the various categories of response are presented in this paper.

Results

Table 1 presents the results of the clinical evaluation of responses to regular multi-dosage tablet Thorazine administration and subsequent responses to Spansule administration. As can be seen, 24 (66.6%) of the 36 patients in the study had shown changes from their pre-drug statuses in the positive direction due to the regular administration of the drug. Two of these patients were being considered for discharge at the time of the initial evaluation. Eleven had shown such improvement on the medication that they have been transferred to open or convalescent wards, and nine had shown slight improvement. Twelve patients (33.3%) showed no change over their previous state.

TABLE 1

Patients' Responses to Thorazine Tablet and Spansule Administration

Response	Tablet Administration	Drop-Out*	Tablet-Spansule Change**	Spansule Administration
+++	2	0	0	5
++	11	1	3	11
+	11	2	4	9
No Change	12	2	4	6
Worse	0	0	0	0
TOTAL	36	5	11	31

*Five patients were dropped from the study because of side effects, and their reaction to the Spansule capsules was not tabulated since the medication was not given for a sufficient period of time to obtain a valid impression of the results experienced.

**In all cases the direction of change was positive and the increase one category (one plus).

At the end of the Spansule administration period 25 of the 31 remaining patients had now responded positively to the drug. One additional patient who had shown no change with the regular medication was now showing further improvement with the Spansule. In all, 11 patients showed a change in the positive direction over and above that shown with regular medication. Three of the patients showing an initial ++ response were being considered for discharge (a +++ response); and four of those showing an initial + response now had been transferred to better wards (a ++ response). All the other patients maintained the improvement they had shown on the initial Thorazine medication. Six of the patients originally in the "No Change" category maintained this status.

There were three patients who, in the past, had developed Parkinson-like reactions on a comparatively low dosage of Thorazine tablets. These reactions had subsided, and at the time the Spansule medication was commenced there were no patients observed with any neurological complications as the result of drug therapy. At the end of the twelve week period of Spansule administration all patients were again screened and no neurological complications were found. Whether Spansule medication will help to lower the incidence of neurological complications frequently associated with the administration of phenothiazine tranquilizers is an interesting point for further study. It would appear from our study that the development of neurological complications was not accentuated, even when dosage was increased.

The incidence of reactions with Spansule administration other than neurological ones were the following: Two patients developed skin rash which was treated concurrently with Pyribenzamine with resultant disappearance of the rash. One patient whose normal blood pressure usually averaged 100/65 developed a marked hypotensive reaction after several weeks of relatively high dosage of Thorazine Spansule (1200 mg. daily) and treatment was discontinued. This alarming hypotensive reaction emphasized a potential source of hazard with the Spansule. If a patient does have a reaction that cannot be controlled within a comparatively short time, it may be necessary to wait until the medication has cleared the gastro-intestinal tract. Some patients complained of drowsiness in the afternoon following administration of 600 to 1000 mg. Thorazine Spansule in one dose. This gradually disappeared, however, and no particular benefits were noted in dividing the number of capsules into two doses given morning and evening. Four patients developed low white blood counts (below 5000) and medication was discontinued. This was an arbitrary cut off point and may have been set too high since the decision was based mainly on a decreased number of white blood cells with little attention to differential determination.

Of the 31 patients completing the twelve week course of Spansule medication, five were kept on the same dosage level as with the multi-dosage medication. There were 11 patients whose dosages were decreased from the original level and 15 whose dosage requirements fluctuated due to changes in clinical course. In general, it may be said that patients who had been reasonably well stabilized on regular medication could be maintained as well on Spansule with approximately one-half of the original dosage.

A survey of the subjective impressions of the patients in this study with regard to the decrease in the number of drug administration contacts showed that the majority preferred to receive the Spansule form. This preference was even verbalized by some of the most regressed patients. Judging from the relative clinical evaluations reported above, the concern which we had originally about the possible detrimental effect of the decrease in contact between nursing personnel and patients has been dispelled.

The positive reactions of hospital personnel to the increased economy of Spansule administration is illuminating and convincing. On a ward of 60 chronic female patients, approximately 50 were receiving some form of drug therapy. In this group there were 15 patients receiving the Spansule capsule. It was observed that it takes about four minutes in this setting to administer a patient's medication. This time includes leaving the nursing station and getting the patient, supervising taking the medication, and returning with him to the ward.

On multi-dosage tablets, 15 patients previously required approximately 180 minutes for drug administration (on a t.i.d. basis). This was reduced to 60 minutes with Spansule administration, or a saving of 2 hours.

It might be added that there is more involved than time saving. Frequently on the large chronic wards of state hospitals, where nursing procedures may be handicapped by inadequate staffing, the resistant, negativistic or balky patient may not always receive considerate and tactful handling. With increased drug schedules to be maintained a mutual antagonism may result between attendant and this type of patient with reinforcement of the patient's psychopathology. Of course, the converse suggests itself. Decreased contact with nursing personnel might decrease the attendant's awareness of changes in the patient's status and thus lessen the opportunities to assist movement in a positive direction. In our study this tendency did not develop. The majority of these chronic patients expressed no need or desire for more nursing attention. In fact, they seemed to be relieved from harassment since they felt that taking medication several times daily was a further imposition heaped upon them by the hospital.

Conclusion

This study is an attempt to survey the potentialities in the use of sustained release medication in treatment of chronically ill psychotic patients in a state psychiatric hospital. Our survey, while limited in character, indicated that this type of treatment could replace multi-dosage medication. It was our impression that the uneasiness which we had concerning the reduction of already limited interpersonal contacts with patients as a result of the use of sustained release medication, was not substantiated.

Illustrative Cases

Case No. 1—G. C. displayed excellent response to multidosage tablet medication and continued to do well with Spansule medication.

Patient is a single white male admitted to the hospital for the first time in February 1954 at age 42 in a catatonic state. Prior to admission he had been hospitalized in 1951 at a V.A. hospital receiving combined insulin and ECT and discharged as improved in 1952. Following his admission to this hospital he received a course of 9 ECT with only transient benefit, remaining antagonistic, withdrawn, and exhibiting catatonic posturing for prolonged periods of time.

In May 1956 he was given 200 mg. Thorazine daily for several months with little effect. In February 1957, because of increased difficulties in ward management, he was put on 600 mg. Thorazine daily, and a few weeks later began to show definite changes in behavior. He was more sociable, participated in ward work, and was now going to O.T. He was allowed to visit home for the first time.

In June 1957 his medication was changed to Spansules and he received three 200 mg. Spansules in the A.M. This was decreased to two capsules in July, the present dose. He has maintained this improvement, although he continues to remain seclusive. He has been moved to an open ward, granted ground parole and permitted home visits. His family plans to take him out of the hospital.

The patient's reaction to the medication was one of indifference in that he expressed himself as not caring how many times he had to take medication. Yet, when the medication was divided into a morning and evening dose, he resented it.

Case No. 2—M. T. displayed good response to multidosage medication but improved further on Spansule medication.

Patient is a 26 year old white, married female admitted to Spring Grove State Hospital in July 1955 at age 24. There is a history of previous hospitalization for mental illness. At the time of her admission to this hospital she was agitated, suicidal, and displayed numerous delusional ideas, particularly of sexual content. Feelings of depersonalization and ideas of reference were also present. Her course of hospitalization was uneven, with infantile behavior and bizarre conversation at times. On several occasions she ran away from the hospital, involving herself in promiscuous sexual relationships, and upon being returned to the hospital she would voice endless complaints about having syphilis. Often she was destructive and uncontrollable.

She was first given Thorazine in July 1956, receiving 200 mg. daily. Simultaneously she was given group therapy. Because of no apparent progress Serpasil was added to her drug therapy, but no appreciable change occurred, and drugs were discontinued. In October 1956 she was transferred to the Continued Care Service as a chronic schizophrenic. She was again started on Thorazine, this time on 800 mg. daily. This was given in a liquid concentrate form, since she refused to swallow tablets. A few weeks later it was noted that she was showing steady improvement, socially and psychologically.

In August 1957 she was placed on Spansule medication, receiving four 200 mg. capsules in the morning. On this regimen she made a good adjustment. She was given a work assignment, and is now on her way out of the hospital. The patient remarked she liked the capsules better because of their convenience and tastelessness. When her medication was divided into an A.M. and P.M. dosage, she made no comment.

Case No. 3—C. K. displayed moderate response to multidosage medication and maintained the course unchanged on Spansule medication.

Patient is a 43 year old white, married female, was admitted to this hospital in February 1957. At the time of admission she was acutely disturbed, behaved inappropriately, was manneristic, delusional, and was hallucinated in both the visual and auditory spheres. The diagnosis was schizophrenic reaction, paranoid type. There was a history of hospitalization in 1951 for what was diagnosed as a manic-depressive reaction following child birth.

On the day of admission she was put on 300 mg. Thorazine daily. After ten days the patient showed some objective improvement, but four weeks later she relapsed, and had to be sent to a disturbed ward. Thorazine was increased to 400 mg. daily but no further improvement occurred. The Thorazine dosage was reduced and she was transferred to the Continued Care Service. She remained disturbed and medication was again increased to 300 mg. daily in April 1957.

Patient showed improvement and in August 1957 the drug was changed to the Spansule type; she received two capsules daily. The patient continued to improve, made a better ward adjustment, and was given a work assignment. By September 1957 she had shown sufficient improvement to be transferred to the Convalescent Cottage area, where she is adjusting quietly and responding in a passive but friendly fashion to the hospital routine.

On the Spansule medication she shows no difference as to the effect upon herself. However, she likes the convenience of taking medication once daily. When the capsules were given in two divided doses she felt no difference.

Case No. 4—P. H. had been making only minimal adjustment on multidosage medication and showed further improvement on Spansule medication.

Patient is a 42 year old white, married female readmitted to this hospital in April 1957. On admission she was extremely disturbed, displayed persecutory delusions, expressed paranoid ideas, was belligerent, antagonistic and assaultive. The diagnosis was schizophrenic reaction, paranoid type. In her first hospitalization she received a course of insulin and ECT, with no appreciable change in her status. For the next ten years she remained difficult to handle, escaped from the hospital on several occasions, and after so doing, created such a disturbance that police had to return the patient to the hospital.

In 1956 the patient was placed on reserpine, 2 mg. daily for several months with some minimal improvement. Through pressure from her family she was paroled November 1956, some ten years after her admission. Five month later she was again returned to the hospital.

Following readmission she was placed on Thorazine, 300 mg. daily, with little response. In August 1957 she was changed to Spansules, receiving three capsules daily, totaling 600 mg. She became calmer, more sociable, and cooperative. Her affect became better, and she appeared to be in good contact. She has had occasional weekends at home.

When questioned concerning her feelings about the Spansules, she stated that she prefers taking the tablets three times a day, because they have more iron in them, and she needs the iron for her blood. Regardless of the iron content, even if it is the same, she prefers the small tablets, since they make her feel better and younger.

Case No. 5—B. B. showed no change on multitablet dosage and Spansule medication.

Patient is a 51 year old white female who had been continually hospitalized since age 34. She is unkempt, untidy, uncooperative, soiling, and displays many stereotyped attitudes and movements. The diagnosis is psychosis with mental deficiency. Over the past 17 years she has shown gradual regression. She has remained out of contact, uncommunicative, and stares catatonically into space.

In 1955 the patient was started on Thorazine, receiving 50 mg. t.i.d. which was increased to 600 mg. daily. By March 1957 little change was noted, other than diminished soiling. In August 1957 she was placed on four 200 mg. Thorazine Spansules daily. She was maintained on this dosage for several weeks but showed no change. The dosage was reduced to two Spansules. She remains deluded, autistic, out of contact, and uncommunicative. On one occasion after some prodding she expressed the feeling that the "capsules are doing nothing for her." There appeared to be no difference in response to two capsules or of four.

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Communication in Stuttering

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Speech is a fundamental aspect of the whole personality. Its function is not only to communicate verbally, but is also an expression of the individual's interpersonal relations. In this context, stuttering may be viewed as being due primarily to the anxiety of the stutterer in his desperate attempt to arrive at psychic unity in the struggle towards self-realization. Thus stuttering is considered as a problem involving both interpersonal and intrapsychic aspects of inner conflict. Where the adult stutterer differs from other neurotic individuals is in the special attitudes, feelings and beliefs relevant to this particular neurotic development and to the added importance and meanings implicit in the "speaking situation."

Stuttering tells us that communication as a whole, and not just verbal communication, is impaired. Since we tend to think, feel, and act as wholes and not in parts, our speech would of necessity follow the general direction of our inner emotions, attitudes and beliefs. Stuttering in this sense pertains to the whole individual and not just to a specific part of his organism.

Speech is considered as our most recently developed, most complex finely balanced muscular activity. Because of its complicated nature, and its numerous nerve areas and muscle groups, which require almost perfect coordination and harmony, it is also an area which is easily prone to disorganization and imperformability during periods of intense emotion. Greene states: "When an individual is in a storm of conflicting emotions, lines of communication are broken and the misdirected nerve messages become delayed or diverted. Most of us at some time or other have experienced the distinctly unpleasant condition of speechlessness due to emotional turmoil. If we realize that the stutterer is in just such a state many times a day, our fundamental problem becomes clear." This language disorganization, which is predominant in people who stutter when under undue stress, is an expression of anxiety in response to some immediate threat to their already weakened personality structure.

Difficulty in communication per se, however, is not the basic problem of the person who stutters. What is more essential is not so much a consideration of the specific words causing trouble at the time a person stutters, or a semantic approach to his language structure, but the particular emotional responses which their connotations evoke in the person who is speaking. It is more informative to arrive at a picture of a stutterer's total response to himself and to his listener, when he feels anxious and stutters, than to know the specific words over which he hesitates. Feared or "bugaboo" words in stuttering are crucial only in the picture conveyed to us in our attempts to arrive at "what is he trying to avoid when he feels endangered, and what is felt as threatening to him at the time he is having difficult speech."

To sum up this aspect of the problem, I feel it much more important, for instance, to comprehend "what" the stutterer is conveying to us in terms of his innermost feelings and meanings, in any particular speaking situation, than "why" he is using this or that word at the time he stutters. To attempt to understand or treat the person who stutters without an insight into his deeper inner turmoils appears to me too mechanistic and fixated an approach. To encourage a stutterer to "speak up," or to "speak slowly," whenever he fears he may stutter, alleviates the situation only temporarily; for unless this same person has some deeper understanding of and real feeling for the many compulsive, contradictory tendencies in himself at the time he speaks, no basic reconstruction of his difficulty can possibly come about. He may attempt to control his stuttering by sheer will power, learn better devices for avoiding "bugaboo" words, or speak in a rapid, flighty manner so as to "race" through the possibility of stuttering before he is through speaking, but all this is automatonlike behavior.

I understand there are some persons working with stutterers who even urge them to develop a callousness and boldness toward others in general, the major emphasis being: "Fear nothing and care little about others when you speak." This process of consciously undermining the seriousness and the suffering involved in stuttering is a negative and harmful philosophy. To help himself stutter less, the stutterer must first find and understand himself. Once he has achieved this to some extent, he will feel himself more as a human being with his own convictions, assertions, and personal freedom of thought and expression. The speaking situation at this point is no longer experienced as a threatening situation, but one in which he is an equal with others, free to express whatever he has or wishes to say at will. His anxieties will lessen, and the need to stutter as a whole will lessen proportionately. Finally, at this level of growth, since stuttering does carry with it impressions of past imbedded speech patterns and reflexive habit responses, I feel that speech corrective measures and social interacting methods, such as group therapy, can be valuable adjuncts in the treatment of stuttering.

In order to arrive at a deeper understanding of the total personality structure of the person who stutters, we must of necessity gain some insight into his "language behavior." As he speaks, and especially when he stutters, it is imperative that we be alert enough to attempt to penetrate his inner defenses, and approximate some of his hidden feelings and thoughts. As we go behind the scenes of his reactions, including both overt and implicit ones, at the time of heightened anxiety and conflict, we are able to unravel some of the confusions and hidden implications and mysteries implicit in his stuttering. Finally, we must make an attempt to understand not only his objective or externalized speech, but his inner or internalized speech as well.

Impaired communication in speech denotes both interpersonal difficulties—that is, disturbances in relation to others—and those of an intrapsychic nature—that is, disturbances in relation to one's self. In order to comprehend some of the intrapsychic factors in stuttering, I feel it essential that we have some knowledge of the stutterer's symbolic language. An example of symbolic deciphering is the attempting to grasp the full meaning behind such a simple expression from a stutterer as: "I'm stuck with a word, I can't go on talking." At face value, it is meant to express just what it verbally states. That is, the specific individual is having difficulty speaking and can't seem to get past a particular "feared" or "bugaboo" word. However, once we get behind the defenses of his character armor, we can arrive at a much deeper understanding of his state of chaos and disorganization. What he now seems to be conveying to us in symbolic fashion is that he basically feels anxious and helpless in the face of overwhelming threats to his neurotic pride and protective defenses. He is also revealing, through language behavir, the threat to his imagined omnipotence in being the "perfect speaker at all times" that lies in potential failure or disapproval in the speaking situation. Finally, this psychic disunity is externalized to the outside, and what expresses itself overtly is the expression of stuttering, with all its hesitations and blocks. The stuttering individual, once he blocks, feels this blocking and inhibition with his whole personality—resulting in final disturbance of feelings, thinking and actions.

The stutterer depends upon the spoken word for communication and self-expression. He has an exaggerated sense of responsibility for speaking which robs him of spontaneity, flexibility, and a feeling for inner choice when expressing himself. However, some stutterers imagine themselves as assuming a role when they speak and they will often change to another midstream with little feeling of awareness. For instance, there are those who speak well as teachers or administrators, yet stutter badly in other speaking situations particularly when sudden changes in social status throw them off balance and cause them to feel threatened and chaotic. One may have little difficulty, for example, when talking to an inferior—someone he feels he has control over or someone who has to come to him for a favor, help, or information. A sense of top-and-bottom relationships and position-effect is

a common indicator of the degree of alienation in some stutterers.

The very ritual of stuttering is an alienated process in itself. At moments of difficulty speech and heightened stuttering, the individual, in need of self-integration, brings into play an arsenal of defensive protective measures in order to allay further feelings of chaos and anxiety resulting from the disunited warring aspects of his personality.

When this person is through speaking, he finds himself lost, shaken, blindly seeking to return to his previous resigned state. His environment at the time may appear even more strange and new to him. People who had been just objects while he spoke and struggled with his stuttering, become people once again. Even as he tries to get hold of himself, his immediate reaction is usually one of—what have I said? was it clear? were they able to understand me? During these specific periods of anxiety, he needs constant reassurance and reaffirmation from others. With monotonous repetitiveness, he asks, "How was I?", "Did I have much difficulty speaking?", "Did I stutter badly? . . ."

The very intention to speak has an objectional significance for those who stutter. The mere thought of speaking carries with it a common denominator of fear, dread and apprehension. For one thing, the stutterer feels obligated to and tied down by his audience in the speaking situation and once he begins to speak, he is convinced that he is doing so against his will and that he is being coerced by the demands of the situation. He struggles therefore not only with the actuality of verbalization but with his concern for the way in which his audience will react.

The process of stuttering in itself is a ritual filled with symbolic gestures. Just before a stutterer begins to talk, he will frequently indulge in a whispered rehearsal of the words he is most afraid of, hoping that by so doing, he will be able to approach them without fear. He feels that he should by sheer will power control his speech pattern, that nothing will "happen to me this time." As he speaks and envisions himself in a larger-than-life concept in which he is superior to those around him, he attempts by some personal form of magic to exert control over his listeners. He sees himself as an 'orator' feeding words of wisdom to his audience. In assuming this, the speaker is seeking protection against his overwhelming inner fear of verbal communication as a whole.

As a defense against this anxiety, he also seeks through some inner resource to throw his voice at will out to his audience or to pull it back into himself. He plays with words, changes them about, makes substitutions, and may even if he finds the going difficult, create his own vocabulary. Emotionally under pressure, he feels he must be master of his own language and that by one device or another, he should be able to make it suit his own particular needs. He may become annoyed however if his listeners do not understand the meaning of his cryptic verbal communications, his coined words, his gesticulations, his unfamiliar pronunciations. At still other moments when speech is difficult, he will attempt to save himself by filling in gaps with falsities, absurd rationalizations or even obvious distortions. If questioned as to the validity of his remarks, he is seemingly offended. Actually what he experiences under these circumstances is rage at himself for not having reinforced and fool-proofed his magic solutions. Had he not failed to bluff his way through to a convincing performance, his defenses could not have been penetrated. So here again, this neurotic reveals his blind faith in himself and his compelling dependence on his maneuvers and duplicities.

The various bodily movements and contortions used also carry with them a sense of implied ritual. The pressing of both hands against the body, the blinking of the eyelids, the placing of the palm of the hand over the mouth—these are but a few of the many bodily 'magic' gestures used in stuttering. Each has its specific and all-powerful meaning for a neurotic need at the moment of conflict.

As a whole, these are unconscious attempts to hold together whatever is disruptive and chaotic at the time. Most stutterers, odly enough, feel that they should and must hold together their disorganized personalities and so they will even go so far as actually to pinch themselves into a semblance of spontaneity and will struggle to

cover up their deficiencies by changing words to suit their fancied needs and to blot out of their awareness and that of their audience any apparent weakness or discrepancy in their idealized image of themselves. Rarely do such devices succeed. Yet in our trying to understand the stutterer, it is most important that we constantly keep in mind the tremendous neurotic pride invested in these solutions. The stutterer neither can nor dare give them up, he cannot lose faith in them. Without them he will experience himself as being lost, a nothing, prey to the onslaught of his waiting self-hate. Only through a slow unveiling and resolution of his conflicts as a whole will his reliance on these neurotic props be abandoned.

Most stutterers are in constant dread of being defeated as they speak. Even before they begin, they are overwhelmed by the fear of not being able to initiate the utterance of a single word or sound. Threatened, they will anxiously whip up and distort the facts or the actualities until they regard the situation in the light of a calamity and doomed to failure. They say to themselves, "I won't even be able to open my mouth," "I can't do it—I know I shall stutter," or "I shall be paralyzed with fear." They fear ridicule, criticism and embarrassment not as self-recrimination but as coming from the outside and from others. Since they are driven compulsively toward the achievement of perfection in speaking, their main emphasis is directed not in terms of what they want to express but on how they will appear before others when they speak, and on how they will finish up in terms of the audience's reaction. Due to their profound sense of inadequacy, each new attempt at speaking becomes a testing ground for their actual existence.

Speaking as a result becomes a conscious process. Constantly at odds with himself and tortured by almost every attempt to express himself verbally, speaking, so habitual a function with normal persons, is for the stutterer an ordeal which fills him with panic and a sense of disaster.

What the stutterer fails to recognize in himself is his need to comply, his fear of aggressively disturbing and intruding upon the privacy of others. Should he ever dare to interrupt another who is talking, he will immediately become involved in anxiety over his boldness and will begin to stutter. What might perhaps be a healthy and perfectly normal act on his part will suddenly have become one that is aggressive and presumptuous. And as with any unconscious attempt toward expansiveness, this will threaten his protective structure to the point that what he actually experiences is now an overwhelming sense of going to pieces, of crumbling.

In summary, the stutterer's own words follow the general direction of his state of being at the time he speaks. In the stuttering phase, for instance, when he is most disruptive, we will find that, instead of free-flowing spontaneous expression, a blocking, hesitant, and confused form of speech ensues. He will splutter and jumble his words to the extent at times of being unintelligible. This word jargon of his, with all its "bugaboo" words and ritual mannerisms and distractions, includes a whole range of overt, anxious attempts to remove disturbing subjective stimuli and conflicting tendencies at the time of felt inner disorganization and disintegration.

An understanding of communication in stuttering is of crucial importance in the total evaluation and understanding of the stuttering process. We must approach the stutterer as a holistic human being, suffering from neurotic difficulties which are expressed overtly when he speaks and especially so at the time of stuttering, if we are to be able to help him find himself and work through his innermost confusions, with all of his anxieties. Only when he finds real inner balance will he achieve healthy coordination of his feelings and actions—including that of relaxed and spontaneous speech.

The Adjunctive Use of Iproniazid in Psychotherapy

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Iproniazid, a 1-isonictonyl-2-isopropyl hydrazine, is an amine-oxidase inhibitor. It has been found useful as a psychic energizer in treating mental depressions.[1,2,3] This paper represents a report on our experiences with iproniazid (Marsilid) as an adjunct to the psychotherapy of depressed, withdrawn, and regressed patients, regardless of diagnostic category.

Scope and Method:

Ten patients were selected on the basis of symptoms of regression and depression. Most of them had been ill for at least a year or had shown no response to psychotherapy, EST, insulin, or psychopharmaceuticals.

The patients were seen in office visits one to two times weekly and some had been in treatment with their present therapist for more than two years.

All patients were started on 50 mgm. of Marsilid TID and maintained on this dosage until they reported they felt free of depression. This usually required one to six weeks. When they were depression-free for a week we decreased the dosage to 50 mgm. BID. If they remained symptom-free for one or two weeks on this reduced dosage, we further decreased the dosage to 25 mgm. BID. Eventually we were able to maintain patients on dosages as low as 10 mgm. per day. The dosage, of course, had to be adjusted to the individual patient, and the maintenance dose might vary from 10 mgm. per day to 25 TID. Since the effect of the drug is cumulative and action tends to be prolonged after withdrawal as low a maintenance dose as possible was used.

We routinely used pyridoxine (vitamin B_6), 50 mgm. daily in conjunction with Marsilid in order to avoid any deficiency in pyridoxine that may result from iproniazid administration.[4,5] Glutamic acid decarboxylase appears to be sensitive to carbonyl reagent such as semicarbazide and seems to require pyridoxine as a co-enzyme. Therefore iproniazid, having a carbonyl group, might interfere with this enzyme system.

The following five cases are presented to illustrate the effects of our use of Marsilid:

Case Histories:

Case 1: A 34 year old housewife with two children was first seen in June, 1957. At that time she complained of feeling depressed, with little interest in living, inferiority feelings, difficulty in caring for home and children, and fears that the neighbors were talking about her. She stated she felt like committing suicide. On formal mental status examination, she exhibited strong evidence of concrete thinking.

She had been ill since 1955 and hospitalized four times in the last 2 years. The first time she received 40 EST, the second time 19 treatments combining ICT and EST, the third time psychotherapy plus EST, and the fourth time psychotherapy, tranquilizers, plus 10 EST. Each time the patient relapsed within two weeks after discharge, and the diagnosis was always schizophrenic reaction, undifferentiated type.

For twenty sessions the patient merely recited her symptoms and would lapse into silence, saying she had nothing to talk about and saw no point in coming to the office. Finally she was started on Marsilid 50 mgm. TID. For over two weeks there was no apparent change. Then, after the third week, she suddenly showed marked improvement. She was more outgoing and alive, had less feelings of guilt about doing things "wrong," became active in organizations, attended meetings, went shopping, and enjoyed her family.

The therapeutic sessions also changed in character. From former long silences and symptom recitals, she began talking about her relationships with her parents, her husband, her in-laws, and her children. While expressing hostility toward her mother-in-law she spontaneously noted the similarity between her mother-in-law and her own mother. Both of these women had been extremely concerned with other people's opinions of them. She recognized that she, herself, had never expressed resentment toward anyone for fear people would disapprove. She then became cognizant that she had identified with her mother in this respect, and was now able to disagree with her mother without the guilt feeling that she formerly had. She told her mother that sometimes you have to stop letting people walk all over you if you want them to think well of you.

The patient also spoke of having to adjust to her husband's lack of drive. She stated she had always wanted someone to lean on but that in her marriage her husband did the leaning. She had resented this

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but had not been aware of it previously. However, she felt that her husband's assets outweighed his defects and she had decided to accept the situation.

She was also able to express feelings of hostility toward her children. She had always felt extremely guilty about these feelings but had been speaking with other people and discovered that it was a natural phenomenon to occasionally feel hostile toward children. She recognized that one could dislike what loved ones did and still be loyal to them and love them.

Case II: A 46 year old married male with a psychotic depression had been ill for over a year. Five years previous he had a depression, was hospitalized for two months, received EST and improved. Four months prior to first visiting the psychiatrist he had been hospitalized for two weeks but signed out against medical advice when EST was recommended.

In his first interview he stated he felt depressed, that he couldn't do anything, was sleeping only two hours nightly with sedation. Business was poor and he couldn't recoup. There were labor difficulties and he feared that he would lose everything. He didn't want to live and might as well commit suicide. He stated he had no zest for life, couldn't concentrate, didn't want to get up in the morning, and saw no point in going to work since he couldn't accomplish anything. He felt that he was a failure and wanted to get rid of his business.

The patient was placed on Marsilid, 50 mgm., TID. Five weeks later he was feeling much better. He laughed. He had more drive. He was busy looking for more customers and was able to run the business effectively. He was sleeping well, felt alive and awake, and despite the fact that business still was not good, things didn't look so black because he had a different outlook. He might still sell out but the offer must be good.

He stated he was able to "give hell" to people now without feeling guilty. He attends meetings and tries to cheer up other people. He realizes that he had been afraid of expressing his own feelings for fear of having people think ill of him.

There was a change in the character of the therapeutic sessions. The patient began to verbalize his resentments and hostility. He talked of his childhood and home for the first time. He spoke about his father who had been an elder in a devout religious community. He told of how kindly his father had been and how family attitudes disapproved of expressing anger. He realized he had absorbed this attitude and had felt extremely guilty and inferior when events occurred that would arouse hostile feelings. He recognized that it was not necessary for him to be just like his father and that his environmental situation was quite different. He realized that he had been bottling up his natural feelings of anger and turning them on himself.

Case III: A 22 year old white, single female who for five years had excruciating spasms of both legs, had fears of going to work or walking alone, and exhibited great dependence on a younger sister. She was unable to enjoy life, and in the month prior to therapy, she had become increasingly despondent with associated anorexia and insomnia. In the initial interview she was tense and bitter and expressed feelings of helplessness in coping with her symptoms.

Past personality revealed obsessive-compulsive trends, marked reliance on family members, inhibitions in social contacts and moderate anxiety features.

After seven weekly sessions, during which time she continued to be strongly fixated in her depressive and regressive symptomatology, Marsilid, 50 mgm., was prescribed. At the next visit, she was mildly elated, stating, "I feel like a new person." In the following visit she stated she was able to socialize more, could walk alone on the street, was less dependent on her family, and had more confidence in herself.

In therapy, she became expressive of her negative and positive feelings, realized that her past behavior with her family was manipulative, and became aware of important identifications with her deceased mother who had multiple sclerosis. She felt motivated to understand more about herself and her problems, and was able to look back over her past behavior patterns and relationships, and how they affected her present attitudes.

Case IV: Since 1927 this 48 year old white, married male has had four depressive episodes of about two years' duration each. In the "free" intervals, he was able to enjoy life and felt confident and capable. With the first two depressions he underwent spontaneous remissions, and with the latter two he had the supportive care of the family doctor. The current episode had been in existence for one year, and had partially and temporarily responded to EST administered 6 months after onset.

In the first interview he complained that "I can't enjoy life, I have no confidence, I feel helpless, I can't do anything, I have no interest, no future. I build up everything as being hard and impossible. I feel inferior, incapable." It was also noted that he was lethargic and showed a moderate degree of decreased psychomotor activity.

After nine months of psychotherapy, during which time he found it difficult to gain awareness and verbalize feelings, and remained fixated on his helplessness and inadequacies, he was started on Marsilid, 50 mgm. dosage. After several interviews over a period of two weeks, he began verbalizing hostility toward his wife, stated he was having "good days" again, and became aware of a variety of feelings. "I can now look back," he said, "and see the way I've been all of my life." Psychotherapy was able to help him gain increased awareness of himself. He became more assertive at home and was able to express his opinions at club meetings. He regained confidence and enjoyed his children.

Case V: This 34 year old white, married female was rather disheveled, extremely frightened, and depressed at the first visit. She tearfully said, "I'm

scared to death. I don't want to take care of my children or cook or clean the house. I hate the house. I want to move near my mother. I want to be with her." She begged the therapist to hospitalize her or give her EST. Since the onset of her illness, ten months prior, she had had two courses of EST (one of 25, one of 9) which helped her temporarily.

Past personality review revealed she had always had a passive-dependent relationship toward her mother, but had been able to maintain adequate social relationships and activities. Obsessive-compulsive personality features were also prominent.

The extent of her depressive and regressive symptomatology seemed to preclude any possible working through of her conflicts in the near future. Therefore, after several more sessions in which she continued to ruminate on her hopelessness and fears, Marsilid, 50 mgm., was prescribed. Within two weeks she was more alert and cheerful. "I'm so happy," she said. She resumed caring for and enjoying her children, cooking meals, and looking after the house. In later interviews she began analyzing her past attitudes, behavior, and feelings. She recognized her excessive dependence on her mother, gained insight into her psychodynamics, and was able to verbalize hostility. Her desire to discontinue psychotherapy showed itself early but she was able to accept the therapist's cautions regarding this move.

Discussion

Administration of Marsilid hastened effectiveness of the psychotherapeutic process. Patients in this study were those who had not moved in psychotherapy for some time, or who had been refractory to various somatic procedures, or who might have formed a therapeutic relationship only after a prolonged period. It seemed that Marsilid provided the initial impetus, setting the stage for the patient to begin working through his many problems.

Patients began to improve in general life functioning. They grew more tolerant of housework, their jobs and businesses. Their children became objects of love and enjoyment instead of fear. They invited guests to their homes and eagerly entered into community activities. Improvement in pathological personality traits also occurred. There was a decrease of fears and anxiety and increase in self esteem and confidence. There was modification of extreme dependence on others and an increased ability to verbalize feelings and thoughts.

Specific structural aspects of the personality appeared to be modified through the use of Marsilid, which allowed psychotherapy to proceed. The ego seemed able to throw off its psychic fixation on depressive and regressive symptomatology, took on important observing and participating functions, and manifested an increased tolerance of hostile impulses without being inundated and overwhelmed. Superego modifications were evidenced by the lifting of depressed states, a decrease in inadequacy feelings and self-criticism, and increased ability to enjoy things. In general, there was rapid insight into present behavior and marked retrospective reappraisal of early patterns. The patients became acutely aware of past psychopathological behavior, feelings, and thinking, and how these were determined by important interpersonal relationships and identifications.

It appears to be wise to inform the patient of the reason for giving him Marsilid (i.e., the adjunctive use). Several patients, after experiencing the initial energizing effects of the drug, expressed a desire to discontinue treatment because they were feeling so well. It was necessary to point out to them that despite their present state of well-being, personality problems remained to be worked out. Therefore it is important to prepare the patient in this manner. It would also appear prudent to sustain the patient's continued motivation for psychotherapy by maintaining a clinical dosage which allows for some degree of anxiety.

Side Reactions:

At maximum doses of 150 mgm. of iproniazid per day we encountered few side effects. These consisted of mild constipation and dizziness. However, other authors report delayed micturition, edema, and delay of onset of sleep. With doses greater than 150 mgm. per day there have been reports of hypotension, twitching of lower extremities, ataxia, hyperreflexia, drowsiness, and dryness of mouth.[8] Also rarely reported (on very high doses) as possibly drug related are peripheral neuropathy,[5] impotence, palpitations, and euphoric psychoses. Toxic reactions to Marsilid have been reported and these consist of jaundice, one case of hemolytic anemia, and skin eruptions.[9] It has been recommended that in such cases the drug be

stopped. Also it is important to withdraw iproniazid gradually, since sudden withdrawal from high dosages may cause headaches, irritability, and other minor symptoms.[10]

Cautions:

Some cautions to be observed when administering iproniazid have been noted. Two types of drugs are known to be potentiated by iproniazid. One group, including the barbiturates[6] and presumably also alcohol and the narcotic analgesiacs,[7] are prolonged in their action by Marsilid, although no serious reactions to this group of drugs have been reported. Desoxyephedrine, amphetamine, and similar synthetic adrenergic drugs should not be used with iproniazid, nor cocaine or its synthetic relatives, except with due caution.[7] Contraindications observed by researchers are that iproniazid should not be given to patients with liver disease and should be used cautiously in patients with impaired kidney function in order to prevent accumulation.

Indications:

Marsilid appears to be a useful adjunct to psychotherapy in the following cases:

(a) where the patient's depressive and/or regressive symptomatology hampers the formation of a working therapeutic relationship.

(b) where the patient's depressive and/or regressive symptomatology has not responded to psychotherapy alone or to somatic therapies.

Conclusions

(1) Marsilid appears to hasten the initiation of psychotherapy in patients with depressed and regressed symptomatology.

(2) Patients taking Marsilid improve in general life functioning and manifest a decrease of pathological personality traits.

(3) Modifications of ego and superego occur allowing insight and re-appraisal of behavior patterns.

(4) Before being placed on Marsilid, patients should be informed of its adjunctive use and their possible desire to discontinue psychotherapy after experiencing a feeling of well being.

(5) Marsilid appears to be a useful adjunct to psychotherapy where depressive and/or regressive symptomatology (a) impede the formation of a therapeutic relationship; (b) have not responded to psychotherapy alone or to somatic therapies.

Authors' Note: The drug, Marsilid, used in this study was generously supplied by Roche Laboratories, Division of Hoffman-La Roche, Inc., Nutley, New Jersey.

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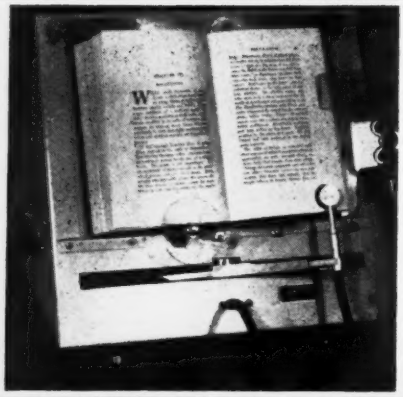

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